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Supplement to

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Staten Island Names

Ye Olde Names and Nicknames

By WILLIAM T. DAVIS

PUBLISHED BY THE
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PROCEEDINGS

OF THE

NATURAL SCIENCE ASSOCIATION

OF STATEN ISLAND.

VOL. VII. No. 1.

Nov. 12th, 1898.

The eighteenth annual meeting of the Association was held at the Staten Island Academy, with the President in the chair.

Reports of officers for the past year were read and approved, of which the following are abstracts :

Secretary :

No. of members on roll at date of last annual report.....	95
Since elected.....	11
Resigned and dropped.....	15
Leaving at date.....	91

Treasurer :

Balance in hand at date of last annual report.....	\$136.45
Receipts :	
Dues.....	225.00
Subscriptions to and sales of Proceedings	10.10
	\$371.55

Disbursements :

Printing Proceedings, notices of meetings, etc	52.50
Postage.....	36.81
Subscriptions to periodicals and books.....	20.50
Insurance.....	15.00
	\$124.81

Balance in hand..... \$246.74

Curator :

Additions to the collections :

Archaeology.....	478
Geology.....	22
Botany.....	6
	506

Additions to the library :

No. of publications received as exchanges (separate parts or numbers)	299
No. of titles included in above.....	69
No. of publications obtained by subscription (separate parts or numbers).....	73
No. of titles included in above.....	4
No. of separate donations.....	9
New exchanges effected.....	3

On motion it was resolved that the regular meetings of the Association dur-

ing the ensuing year be held on the second Saturday evening of each month except July and August

On motion the President was empowered to appoint a committee to arrange for a course of public lectures.

On motion the following preamble and resolutions was passed :

WHEREAS, The Natural Science Association of Staten Island recognizes and has long recognized the great need of the establishment, in the Borough of Richmond, of a system of public parks; and

WHEREAS, The natural advantages for a system of public parks found within the Borough, whether of hill, valley, glade, meadow, lake or marine scenery, are unsurpassed by those of any equal area in the world; and

WHEREAS, Land affording these advantages, suitable for park purposes, can be obtained at reasonable prices, and, on account of the increasing population of the Borough, probably never with a smaller expenditure of time, energy and money than at present; be it

Resolved, That this Association respectfully suggests to the Honorable Commissioner of Parks of the Boroughs of Manhattan and Richmond the consideration of these facts and earnestly requests the said Commissioner to take such action as will, in his judgment, insure an early preliminary study of the matter.

Resolved, That this Association respectfully tenders to said Commissioner such aid as it may be able to give or obtain in furtherance of the object of this presentation.

Resolved, That the President of this Association be and is hereby requested to transmit the foregoing preamble and resolutions to the Hon. Geo C. Clausen, Commissioner of Parks of the Boroughs of Manhattan and Richmond, and a copy of them to the Hon. George Cromwell, President of the Borough of Richmond, together with such explanatory letters as he may deem desirable.

The election of officers for the ensuing

year resulted in the re-election of the former incumbents, as follows :

President, Walter C. Kerr ; secretary, Arthur Hollick ; treasurer, J. Blake Hill-
yer ; curator, Eric T. King ; trustee, Wm.
T. Davis.

Dr. N. L. Britton read the following memorandum :

A BURIED FOREST NEAR GIFFORDS.

In a recent conversation with Mr. John J. Crooke, of Giffords, he gave me his recollection of the discovery of buried logs in the swamp just west of the railroad, at the crossing of the Amboy Road, near Giffords station, where, until a comparatively recent date, there was a conspicuous growth of maple trees. The logs were exposed in an excavation for a drainage ditch about five feet wide ; they were covered with black muck through which a pole could be run to a great depth ; those exposed were not more than four feet below the surface and some of them were fifteen inches in diameter. Mr. Crooke stated that they were "cypress," presumably the white cedar, (*Chamaecyparis thyoides*,) a tree which has never been reported as growing on Staten Island.

MISCELLANEOUS MATERIAL PRESENTED.

By Mrs. N. L. Britton. *Acaulon muticum* (Schreb) C. M —A moss not previously recorded from the Island. Found at Totenville, Nov. 8th.

By Dr. Arthur Hollick. *Salvinia natans* (L) All., found by Dr. M. A. Howe in Ketchum's pond near Richmond. It was

found in Silver Lake and in a pond near Moravian Cemetery, in 1893, by Mr. Thos. Craig, as reported by him in our Proceedings for Oct. 14th, 1893, but since then no further memorandum in regard to it has been given. In the new locality it was found growing in connection with quantities of *Lemna* and *Riccia* and appeared to be thoroughly at home.

[In a note subsequently received from Mr. Wm. T. Davis he states that he is responsible for the introduction of the plant, having placed some there last Spring.]

By Mr. Eric T. King. Fragments of a Lower Helderberg limestone boulder, containing brachiopods and fragments of trilobites, found near Arrochar.

Dr. Hollick read the following review :

**RECENT LITERATURE RELATING TO
STATEN ISLAND.**

Additions to the Palaeobotany of the Cretaceous Formation on Staten Island. Arthur Hollick. Ann. N. Y. Acad. Sci. Vol. xi. (Sept. 1898) pp. 415-430 ; pls. xxxvi.-xxxviii.

This paper is supplementary to two previously published in the Transactions of the Academy and is based on material shown at the meetings of this Association from time to time, as noted in the Proceedings during the past few years. The specimens figured are all in our museum. Twenty species are listed, including one new to science, the latter named *Pistacia Aquahongensis*, in reference to its place of discovery.

PROCEEDINGS

OF THE

NATURAL SCIENCE ASSOCIATION

OF STATEN ISLAND.

VOL. VII. No. 2.

DEC. 10th, 1898.

The regular meeting of the Association was held at the residence of Mr. Eric T. King, Arrochar.

In the absence of the President Capt. A. W. Vogdes was elected chairman *pro tem*

Mr. Wm T. Davis read the following

ADDITIONAL MEMORANDA ON THE FIRST SHAD OF SPRING.

In our Proceedings for January 12, 1889, may be found recorded the dates when the first shad of the season were taken in Staten Island waters in the years 1873 to 1888. The earliest dates there recorded are March 28th, 1878, and March 28th, 1880. I have been told by fishermen that in many years shad could probably have been caught earlier than the dates of actual capture, only it did not pay to go shad fishing before they were sure of catching them in some numbers.

The following additional notices in regard to Staten Island shad have been copied from old local newspapers, and it may be noted that March 22nd is the earliest date given.

"Commodore Abraham Simonson, a citizen of Middletown, caught four fine shad on Saturday evening at Robins' Reef, being the first taken in our bay this season"—*Richmond County Gazette*, Wednesday, March 26th, 1862.

"The first shad of the season taken in Staten Island waters was caught last Sunday off Stapleton, by Capt. Stillwell."—*Gazette*, Wednesday, April 1st, 1863.

"The first shad of this season was caught by Mr. David Burgher, yesterday."—*Gazette* March 28th, 1866.

"The first shad of the season was caught by Messrs. Simonson & Co., in their nets at Robins' Reef, on the 27th of

March."—*Gazette*, April 1st, 1868.

"The first shad of the season was caught by Mr. David Burgher yesterday afternoon, a sure sign that Spring has come. The poles are now being set by Messrs. Stillwell, Simonson and others."—*Gazette*, March 30th, 1870.

"The first shad of the season was captured by Capt Jas. Stillwell on Sunday, and was presented by Mr. Thos Brown to School Superintendent J. L. Keenan of the 1st district, New York; its subsequent career is not known."

Gazette, Wednesday, April 9th, 1873:

"The first shad of the season was caught in fykes belonging to Capt. J. P. Ketteltas, of South Beach, Friday last." [April 1st.]—*Gazette*, April 6th, 1881.

"William Wardell, of Stapleton, on Saturday, captured the first North River shad of the season, which wandered into his nets in the Narrows. Mr. Wardell took the silvery-sided beauty to Fish Commissioner Blackford, at Fulton market, and received the five dollar gold piece for his luck that always goes to the catcher of the first shad. Mayor Grace had the choice edible presented to him for his Sunday dinner."—*Staten Island Gazette and Sentinel*, Wednesday, April 15th, 1885.

"John Fence, of Stapleton, has the distinction of catching the first shad this season in a drift net in Staten Island waters. He caught three on Thursday afternoon, [April 5th,] and later, making another haul, he captured four."

"Jacob Hoefle was the second lucky man, as he secured several fine shad the following day."—*Richmond County Herald*, April 7th, 1894.

In addition to the blossoming of the "shad

bush" or "shad flower," (*Amelanchier*) which occurs about the middle of April, other signs which indicate the time when the shad appear are the shad flies and the shad frogs. I have made no observations on the flies, but the shad frogs or leopard frogs, as they are quite frequently called, commence holding their conventions in the early part of April, often in the pools on the salt meadows that lie near to the upland. These are very noisy assemblages, and one of the signs quite easy to read in Nature's calendar. I have met with these frog gatherings on Old Place meadow on the 9th, 14th and 16th of April. The wood frog holds its conventions too early to be of much service as a "shad frog."

Dr. Arthur Hollick read the following notes on

RECENT LITERATURE RELATING TO STATEN ISLAND.

1. *A Catalogue of the Oretaceous and Tertiary Plants of North America.* F. H. Knowlton. Bull. No. 152, U. S. Geol. Surv., pamph. pp. 247 (1898.)

The principal feature of interest and value to us, in this work, is that our local fossil plants all come within its scope and should therefore be included in it. This seems to have been accomplished by the author in every instance, except in the case of *Phragmites Aquahongensis*, which is omitted from the list of names, although curiously enough the title of the

article in which it was described is correctly given in the bibliography which precedes the list. It may also be of interest to note that *Myrica grandifolia* Hollick, from Tottenville, is changed to *Myrica Hollicki* Ward, (See Am. Journ. Sci. Vol. XLV (1893) p. 437), on account of the name originally given having been pre-occupied by a foreign species.

2. *Bibliography and Index of North America Geology, Palaeontology, Petrology, and Mineralogy for 1897.* F. B. Weeks. Bull. No. 156, U. S. Geol. Surv., pamph. pp. 130 (1898.)

This work is limited in its scope to publications which appeared during the year 1897, but it is a coincidence that during that year *Phragmites Aquahongensis* was described, and while it was omitted from the work previously noted, it appears in its proper sequence in this index, with correct reference in the bibliography.

MINOR NOTES.

Dr. Hollick also exhibited a specimen of *Potentilla Anserina* L., recently found by Dr. F. Hollick, at Sailor's Snug Harbor. The species was admitted into the original catalogue of Staten Island plants solely on the authority of a specimen contained in the herbarium of the late Dr. Samuel Elliot, and probably collected about thirty-five years ago. Its rediscovery after so long a time is very gratifying.

PROCEEDINGS

OF THE

NATURAL SCIENCE ASSOCIATION

OF STATEN ISLAND.

VOL. VII. No. 3.

JANUARY 14th, 1899.

The regular meeting of the Association was held at the Staten Island Academy, with the President in the chair.

Mr C. S. Snead, New Brighton, was elected an active member.

Mr. Thos. Craig exhibited drawings and read the following memoranda on
SOME RECENT INTERESTING FINDS IN
POND LIFE.

Dictyosphaerium? It is possible that this plant, which I found in Butler's pond last October, may not be new, but it is not figured or described in Wolle's, Fresh Water Algae of the United States, and as I have none of the foreign books on the subject I am unable to say whether it is new or not; at any rate it is new to this locality.

It is a small plant, composed of a globe of gelatinous matter in which silvery-looking threads radiate from the centre; the tip of each thread branches into four parts so that the two opposite form a semi-circle, while at the end of each branch is a small green sphere, containing apparently a single chlorophyll plate. The diameter of the cenobium was about one fourhundredth of an inch. I submit a small drawing of the plant.

Amphileptus meleagris Ehr. or *A. Anser* Ehr. The question to be decided is which is it? In December last I had the good fortune to observe, on a *Zoothamnium arbuscula*, an infusorian similar to the description in Kent's Manual of the Infusoria of *Amphileptus meleagris*, with this difference, that the oral extremity had a mouth at the end of a very short proboscis, through which it was absorbing the contents of one of the zooids of the *Zoothamnium*. After feeding the animal roved around for a time and then came back into the colony again.

There were two of them—one died and dissolved—the other, the one I first ob-

served, after some time, developed a proboscis and had all the appearance of *Amphileptus Anser* in figure 40, plate 27, of Kent's Manual.

The inference which I draw from this is that *A. meleagris* Ehr. is only an immature form of *A. Anser* Ehr.

Drawings of each species, copied from Kent's Manual, are submitted.

On motion the meeting then adjourned.

After adjournment the first annual public microscopical exhibition of the Association was held, in connection with the Staten Island Academy.

The President of the Association, Mr. Walter C. Kerr, made the following introductory remarks:

Ladies and Gentlemen:

It is a pleasure to the members of the Natural Science Association to place before those who have accepted the invitation for this evening, some of the things in which a few of us are interested.

There is a great curiosity attending the ability to see whatever is normally concealed from vision and, with due respect to the telescope, the microscope is undoubtedly the most practical instrument with which to enlarge our range. The telescope may have its advantages on some occasions but the microscope and its objects are within reach of all, can be used at all hours and, for ordinary purposes, requires but little skill in manipulation.

The beginnings of the microscope are humble and convenient. I carried a little pocket glass, worth perhaps 25 cents, and magnifying 10 diameters, for fifteen years; then replaced it with this one of much finer quality, magnifying 15 diameters and worth about \$5.00. This I have carried for five years and what I have seen

during the past twenty years with these glasses would fill volumes.

Such glasses are not too insignificant to be called microscopes, even though their limit of power is so small. Their limitations, however, encourage the advance to the compound instruments such as are exhibited here this evening, and which range in value from twenty-five dollars to many hundreds. My reason for mentioning values is that many have an idea that what seems like a great instrument is necessary for microscopic research and their inclination is thus restrained by the apparent complexity and cost. Not only is such a view incorrect but it is even unwise that microscopic work should begin with complex and high-powered instruments. There are so many things to observe that a simple cheap instrument can afford instruction and amusement for a long time and it is only after experience has been gained that it is desirable to go further into this branch of science, which is so inexhaustible as to be a never-ending source of pleasure.

We all know that study is pursued for two purposes; the acquirement of facts and the training of the mind. The use of the microscope is an unusually pleasant combination of the many factors in education, for by it facts are acquired in a pleasurable manner, while the training is of a kind not common to other study because it gives a field of vision beyond that for which nature fitted the eye.

The earliest reference to the use of lenses for the purpose of magnifying was about the year 1300 A. D., though not until about 1600 was anything made that truly constituted a microscope. It is highly probable that the combination of two or more lenses, forming a compound microscope, was invented by Galileo. About 100 years later various forms appeared and by the beginning of this century, or perhaps 1810 to 1820, comparatively high-powered and accurate instruments were produced, magnifying as high as 1,200 diameters.

Such instruments were, however, so rare that only low powers, magnifying

perhaps a few hundred diameters, were accessible to such scientists as used them for practical investigation.

Since that time refinements have been slowly added until now almost any desirable perfection is obtainable. The perfection which has been reached in optical instruments is scarcely known even to those who use them and it is only those interested in the mathematics of the optical qualities who truly appreciate the refinement which skill has attained.

The human eye is usually referred to as a type of optical perfection, but even as long ago as the last century the grinding of lenses had reached such a stage that a prominent astronomer remarked that were the maker to send him a lens which had as many imperfections as the human eye he would return it as defective.

It would be out of place here to undertake a description of the instrument, but it may be of interest to remark that the three prime requirements are magnification, definition and absence of color.

The magnifying power is of course produced by the ability of the lens to make an enlarged image of the object, but if in this enlargement the image is distorted the definition is impaired. The lens must therefore make a true and clear image as well as to magnify it. The magnification being produced by refraction of light is liable to give rise to bands of color such as one sees through a prism and therefore corrections must be introduced in the lenses to counteract this tendency; otherwise the image will be blurred by fringes of color along the edges of all parts of the object. The combinations of lenses which thus prevent the appearance of colors which are not natural to the object are known as achromatic, meaning without color.

Without entering upon technicalities regarding magnification it may be roughly said that a small microscope, like a hand glass, magnifies the image once and the degree of magnification may range from 5 to perhaps 30 diameters, according to the strength of the glass, while the compound microscope magnifies twice; that is, the image is first magnified by the objective lens and this magnified image is again magnified by the eye piece. It will therefore be easily seen that if the objective magnifies 10 diameters and this enlarged image is enlarged 10 diameters by the eye piece the object will appear to the eye magnified 100 diameters.

In compound microscopes, such as you will have an opportunity to see this evening, the low powers may range from 50 to 100 diameter; the moderate powers from 100 to 500 and the high powers from 500 to 2,000, with exceptional lenses, which

are very rare, magnifying up to 5,000 or more.

The difficulties of manipulation rapidly increase with the increase of magnifying power and as the higher powers are reached many auxiliary devices, aside from the lenses, are required, as, for instance, condensers, in order to condense enough light onto a small object so that this light when diffused by the magnification shall still be strong enough to enable the eye to see the magnified image.

Any one wishing further information on such matters may ask any of those who exhibit large microscopes this evening, who will be glad to show and explain such accessories to those who wish to further understand them.

Light is of course the medium by which we see objects, whether with the eye or through instruments, and its rays are so fine, relative to the size of the object, that light may be considered a highly refined medium by which the smallest features are discernable. In fact the rays of light are popularly presumed to be so delicate as to preclude any material thing being more so.

One can, however, easily conceive of how difficult it would be to see the head of a pin by means of ray of light which was an inch or a foot in diameter and when we undertake to use very high powers on a microscope an important limitation arises through the fact that the objects requiring such high power are so small that their size closely approximates those qualities of the light which make it the medium of vision.

In a simple way it may be said that the powers of an optical instrument depend upon the refraction or power of the lens to bend the rays of light. This refractive power also depends upon the wave length of the light, which for ordinary rays is about 1-40,000 or 1-50,000 of an inch. When therefore the object is comparatively small, say 1-100 of an inch, it is yet vastly larger than the wave length and its magnification is not complicated with optical difficulties. When, however, the size of the object is only about 1-40,000 of an inch, as in the striae of various diatoms it is quite as small as the wave length and when less than 1-100,000 of an inch in size it is so much smaller as to be almost impossible to resolve. It is quite doubtful whether what it seen of such almost inconceivably small particles is a true image of their form.

The above is mentioned to illustrate the limitations involved in microscopy rather than with reference to the practical use of the instrument; for nearly all the work is performed under powers of 1,000 diameters or less, while even the investi-

gations of bacteria, of which so much is now heard, are conducted with powers rarely exceeding 1,200 diameters.

The immense variety of unseen life and form brought into vision by the microscope is appalling; for the hundreds of plants and animals visible to the naked eye thousands or even millions exist which are invisible. The ability to investigate them microscopically is even better than the opportunity to study the larger forms with the naked eye.

Not only are living organisms, which are always of peculiar interest, ever ready at hand, but means have been devised for microscopical research into apparently more difficult fields. Thin sections can be made of nearly anything and so mounted that the most delicate structure may be studied. Even rocks are ground so thin as to be transparent, allowing the microscope to determine their constituents. Chemical substances are crystallized in thin films on glass slides so that their peculiar forms may be observed and the surface of opaque objects may be viewed by reflected light.

We cannot now dwell on how material is thus prepared for investigation, but in the slides which are in the instruments this evening you will be able see many of these forms and further details can be gained from those who personally conduct the several exhibits.

It is known to comparatively few that light may be used in another form than that in which it commonly meets the eye. This form is known as polarized. It would be difficult and out of place to here explain the difference between polarized and plain light. A crude analogy, however, would be to say that common light has its rays and vibrations more or less jumbled together in an apparently complicated and unsystematic way, while in polarized light the rays and vibrations are so straightened out as to assume an orderly arrangement.

Perhaps another way of illustrating it by analogy would be to consider water falling in a stream and breaking into drops like rain, representing no particular order. This would represent plain light, but if the water was allowed to flow through several narrow slits it would first appear in thin sheets which when broken into drops would cause these drops to be more symmetrically arranged than if they had merely fallen in a confused mass, and this would typify polarized light.

The polariscope attachment to the microscope, which is shown on some of the instruments here to-night, so modifies the light as to enable certain characteristics of objects to be brought out which are not visible under plain light. Thus

art and science have extended the range of vision beyond that which was intended by nature to come within the scope of the human eye.

A neat extension of microscopical work will be shown to-night by means of a projecting microscope. This should not be confounded with a stereopticon, which throws magnified pictures on the screen. In the case of the projecting microscope no picture or negative is used, but the object itself is placed in the instrument and when you see the image on the screen it is just what you would see if looking down the tube of an ordinary microscope. A large audience is thus enabled to simultaneously view the same image just as if all were looking through one large microscope.

This process while applicable to moderate powers does not possess the clearness of definition of the microscope itself and I would ask that you observe the greater clearness of the objects shown in the instruments than those thrown upon the screen.

It is to be regretted that at exhibitions we can show under the microscopes so few slides. Many of us have hundreds of slides, most of which are interesting, yet on such an evening as this we can select but one slide for each instrument and place it before you. What you see therefore at a microscopical exhibition is but the merest fraction of the exhibit which could be made were it mechanically possible to place our entire collections before you.

Many who have only seen slides under the conditions in which we show them this evening may gain the impression that all objects require mounting in permanent form, while in fact these mounted objects represent the smallest portion of the material which a microscopist passes through his instrument.

Most of the work is done with live matter gathered from the ponds, woods and everywhere; mounted temporarily in water and when viewed is wiped off the slide with no attempt at preservation.

As a rule the greatest interest centers in the observation of living organisms in temporary mounts, but the difficulties of making public exhibition of such objects cause most of the instruments to be shown with permanently mounted objects, while the other class are largely reserved for the private exhibitions which any of those who possess instruments are always pleased to give their friends.

In closing I wish to refer to the hearty cooperation of the Staten Island Academy with the interests of this Association, which is duly appreciated, and also to what I believe to be the wise policy of expansion adopted by the Association,

through which we take pleasure in including the public in the consideration of the many things of nature to which we devote such part of our time as can be allotted to the combining of recreation and the acquirement of knowledge.

The President's remarks were followed by an exhibition of forty-five objects, shown on a screen by means of a projecting microscope, after which there was an exhibition of selected objects under microscopes, as follows:

1. Four microscopes made by Carl Reichert, of Vienna and loaned by Richards & Co., No. 30 E. 18th street, New York, showing:
 - a. Diatoms.
 - b. *Trichina spiralis*
 - c. Teeth of the medicinal leech.
 - d. *Anaspis melanopa*.
 2. Living *Nitella*, showing circulation. THOMAS CRAIG.
 3. Arsenious and tartaric acids, mixed. Shown by polarized light. WALTER C. KERR.
 4. Slide, showing 400 diatoms, with name of each photographed under each specimen. C. S. SNEAD.
 5. Polycistinus from Barbados. C. W. HUNT.
 6. Book louse. C. W. HUNT.
- Series of four rock sections, each one accompanied by a hand specimen of the rock from which the section was taken; the first three shown under polarized light.

[7-10]

DR. ARTHUR HOLLICK.

7. Fibrolite schist, from Boulevard and 158th street, New York. A metamorphic rock, composed of fibrolite, biotite mica and quartz and containing garnets.
8. Quartz-mica diorite, from Stony Point on the Hudson. An igneous rock composed of triclinic feldspar, mica and quartz.
9. Diabase, from Graniteville, Staten Island. An igneous rock, composed of triclinic feldspar and pyroxene. This is the rock which is extensively quarried at that locality, and used for macadam.
10. Nummulitic limestone from San Domingo. A rock composed almost entirely of the tests of the small marine animal *Nummulites*.
11. Eye of horse fly. WM. T. DAVIS.
12. Gold crystals, deposited electrically. ALBERT W. JOHNSTON.
13. *Trichina spiralis* from human subject. DR. C. WILMOT TOWNSEND.
14. Section of human scalp, showing hair follicles. DR. WM. C. WALSER.
15. Iridescent leaves of a moss (*Octoblepharum albidum*) which grows on palmettos in Florida and tropical America. MRS. N. L. BRITTON.

JAN 22 1902

PROCEEDINGS
OF THE
NATURAL SCIENCE ASSOCIATION
OF STATEN ISLAND.

VOL. VII. No. 4.

FEBRUARY 11TH, 1899.

The regular meeting of the Association was held at the residence of Mr. Thomas Craig, New Brighton, with the President in the chair.

Mr. A. A. Yates, Mariners' Harbor, was elected an active member.

The committee on public lectures announced that the next one would be by Prof. William Hallock, of Columbia University, on "The Interior Heat of the Earth."

Dr. Arthur Hollick read the following communication:

AN EXAMPLE OF ISOSTASY.

On the west side of the Rapid Transit Railroad, at the Fort Wadsworth station, is an amphitheater-like depression in the moraine, part of which is occupied by the small body of water known as Lily or Luling's pond and part by a swamp. The general level of this depression is about 75 feet above tide level. A short time ago Mr. Eric T. King called my attention to an interesting instance of ground sinking at the locality, due to filling in for a new roadbed for Tompkins avenue, which there crosses the swamp between the Fingerboard road and the railroad tracks.

On a recent visit I found not only that the new roadbed had sunk, but that the ground on each side had risen and large red maple trees had been thrown out of their original vertical positions so that they are now inclined at various angles, some with their roots more or less exposed. The soil was found to consist of a fair quality of peat, which, after drying, was found to ignite readily and to maintain a steady smouldering fire. Mr. King informed me that the peat has been used

to some extent for fuel and a fire which was kindled to burn off some brushwood started a ground fire which burned for several months.

Wishing to obtain exact data if possible, as to the depth of the peat, character of the underlying deposits, etc., I wrote to Mr. Henry P. Morrison, Deputy Commissioner of the Department of Highways, who kindly furnished me with the following information:

MY DEAR DR. HOLLICK—In reply to your inquiries concerning the sinking of the roadbed of Tompkins avenue, near Fort Wadsworth, permit me to say that the location you refer to is that part of Tompkins avenue, about 550 feet, lying between the Fingerboard road and the S. I. R. T. R. tracks at Fort Wadsworth station.

The fill is being made over an old earth road, which supported the traffic that went over it, but quaked and shook if stamped on hard.

Some of the people living in the neighborhood state that the road was built on the site of an old cranberry swamp.

While constructing the improved highway, the fill, having reached a height of from 3 to 4 feet, began to sink and large and deep cracks began to appear. After dumping more material the fill began to settle more rapidly and very unevenly. A section would sink from 2 to 4 feet during a night, while an adjoining section would not sink at all. In one case a section 16 ft. x 30 ft. sank 12 ft. in 36 hours and continued to sink when more earth was dumped there.

The old roadbed was practically level

with the ground on either side, but when earth, to a depth of about 10 feet, was dumped upon it in order to obtain the new grade, the fill sank and banks on each side rose to the new level of the roadway, exposing a rank black vegetable matter resembling peat. In the rising, large trees were lifted and in several cases the roots of these trees were wrenched from the sod in which they were imbedded and are now inclining at a critical angle where the least disturbance will mean their downfall.

Under the old roadbed, about 200 feet from Fingerboard road and about one foot below the surface, was a section of a 12 inch culvert pipe, but since filling in, this pipe is seven feet in the air.

No exact statement of the amount of earth required can be given; the actual fill, if no settling took place, would take about 10,700 cubic yards and in making up the estimate, 15,000 cubic yards more were allowed, making a total of 25,700 cubic yards. About 7,000 cubic yards have already been dumped and the fill is at present sinking about as fast as it is made. Borings made with a 2 inch pipe show a blue clay underlying the peat at a depth varying from 17 to 28 feet at 200 and 250 feet from the Fingerboard road, while at a distance of 300 feet a 1 inch pipe was driven down 33 feet but no bottom reached. The pipe penetrated the ground with very little pressure.

Mr. Rotheroe, engineer in charge of the S. I. R. T. R. R., states that when the railroad company made their fill over this swamp, it sank to a depth of from 8 to 10 feet and spread out to a width of about 150 feet at the surface of the peat.

Respectfully yours,

HENRY P. MORRISON,

From these facts it is evident that a good sized body of water once occupied

the entire depression and that in places it was more than 30 feet in depth. This gradually became silted up from surface drainage and the accumulation of decayed vegetation, until all that now remains of it is represented by Lüling's pond. The overflow was evidently where the railroad station now stands, as may be seen by following around the level of the swamp and pond, and a sluggish stream may be noticed flowing in this direction and doubtless more water gradually seeps away through the spongy peat which apparently fills the outlet. As the new roadbed is practically a dam across this outlet it will surely result in raising the level of the ground water, unless some provision is made for proper drainage. In the meantime it will be interesting to watch and note when a state of isostatic equilibrium is finally attained.

RECENT LITERATURE RELATING TO STATEN ISLAND.

A Guide to the Study of the Geological Collections of the New York State Museum. Fredk. J. H. Merrill. Bull. N. Y. State Museum, Vol. iv., No. 19, (Nov. 1898) pp. 262, pls. 119 and map. This bulletin is practically a popular text book, profusely illustrated, on the geology of the State. Unfortunately none of the illustrations refer to Staten Island, but there are numerous brief references in the text, under both Historic and Economic Geology. On the map the serpentine area of the Island is colored to represent Lower Silurian, in conformity with recently expressed views of the author, but further than this the local references contain nothing of special interest.

MINOR NOTES.

Mr. J. B. Hillyer presented a partial file of the Richmond County Mirror, for the years 1837-38, and read a number of interesting items relating to the Island.

PROCEEDINGS

OF THE

NATURAL SCIENCE ASSOCIATION

OF STATEN ISLAND.

VOL. VII. No. 5.

MARCH 11th, 1899.

An informal meeting of the Association was held at the Staten Island Academy.

The following communication, prepared in accordance with a request made at the last meeting, was presented by Mr. J. B. Hillyer :

EXTRACTS FROM OLD NUMBERS OF THE RICHMOND COUNTY MIRROR.

As mentioned at our last meeting, through the kindness of Mrs. Abram C. Wood, of West New Brighton, our Association has come into the possession of several copies of the first newspaper printed on Staten Island, the "*Richmond County Mirror*," a paper which began publication on or about August 5th, 1837. The copies donated are :

- Vol. I, No. 3, Sept. 2, 1837.
- " I, " 4, " 16, "
- " I, " 5, " 30, "
- " I, " 11, Dec. 23, "
- " I, " — May 12, 1838.
- " II, " 1, Aug. 4, "
- " II, " 2, " 11, " (part)
- " II, " 3, " 18, "
- " II, " 4, " 25, "
- " II, " 5, Sept. 1, "
- " II, " 11, Oct. 13, "

In looking over these papers of an earlier day and generation the contrasts between them and those of the present time are startling ; not alone the peculiar quarto paper, tough and fine, nor the kind of type, smaller in the body, broader in the titles, simpler and plainer in the headings and head-lines than those most familiar to us, but particularly are we impressed with the choice of matter found between the covers. The editor, Francis L. Hagadorn, of New Brighton, seems to

have been a man of considerable education, of a good literary style, careful in his choice of articles, whether original or selected and withal a keen student of the politics and statesmanship of his times.

Of special interest to Staten Islanders is a wood-cut of the "residence of Geo. A. Ward, Esq., just completed at New Brighton." This is the house on the corner of Richmond Terrace and Franklin avenue, now familiarly known as "The Castle." Mention is made of the composition of which the walls were made as something new, economical and at the same time handsome and ornamental. "This building, 'the editor says,' is a sufficient curiosity to start half the world on a pilgrimage to Staten Island; it is finished throughout in the most chaste and elegant manner, and gives a picturesque character to the neighborhood." This is in Vol. I, No. 3.

Again, in Vol. II, No. 3, appears a wood-cut, this time of the "Front Elevation of the New Brighton Pavilion." The central part consists of two stories with a dome above, connected by a single-story building on either side with a two-storied building, each of the three main buildings being finished in the Greek Temple style a short single-story wing on the right and a much longer similar wing on the left completing the group; quite different from the present building but easily recognizable. In an editorial the building is called the "*chef d'œuvre* of our richly ornamented little island. * * * * The centre building was first projected as the private residence of Thomas E. Davis, Esq. * * * * The colonnade in front of the building is more than two hundred

feet in length. * * * * The Pavilion can accommodate between three and four hundred persons."

In Vol. I, No. 4, the "Light House on Robin's Reef" is mentioned as a "work which promises well to be of some importance to our little island, actually to be commenced in a short time." Plaster Busts are said to be a happy invention by Dr. T. Barlow of New York, a phrenologist.

Vol. I, No. 5. "Great Match.—Fiun, the comedian, lately undertook to walk five hundred miles in five hundred consecutive hours, which he affected with ease. This is said to be the greatest performance of the kind on record."

Vol. II, No. 11. "Magnetic Telegraph.—Experiments at two-thirds of a mile have been successfully made and on Tuesday next it is expected that a series of experiments will be made at *ten miles* distance."

Vol. II, No. 11. "Tomato Pie.—The other day we partook for the first time of a tomato pie. * * * * The tomatoes are skinned, sliced, and after being mixed with sugar, are prepared in the same manner as other pies. The tomato is likely to become one of the most useful of plants."

The reading matter in these papers includes articles on Natural History, Geology, Educational Statistics, Insectivorous Birds, Curious Method of Catching Wild Pigeons, The Sun-flower, Habitations of Animals, etc., as well as much political and local news and continued articles. The paper is advertised to be sent out of the county only when prepaid. A new road is said to have been "M'Adamed." The Island had at that time from nine to ten thousand inhabitants. The only post offices mentioned are "Cityville, Tompkinsville, Richmond and Port Richmond." West New Brighton always appears as "Factoryville." The fare to New York by boat was "reduced to 12½ cents" and later to 6¼ cents when a rival line was started, one line making four, and the other six trips each way daily. One line advertises "no connection with Quarantine Hospital," recalling the disrepute in which the hospital was held. One "Millard" advertises as a "ship and house carver." Another has a

"Mahegany Yard." "O'Hara's Coffin Warehouse." * * * * "P. & E. Cumberston, white and blacksmiths" (a whitesmith was worker in brass—a locksmith of the present day.) * * * * "Tuscan and straw hat manufacturers." * * * * "Dentist, leeching and cupping." * * * * "Attorney and solicitor in chancery." * * * * Advertising rates at so much a "square." * * * * "Cordials," "bitters," "syrops" and "elixirs" long since out of use. "Manor" is a recognized village name.

MINOR NOTES.

Dr. Arthur Hollick presented two pamphlets, recently found while overhauling an old library, relating to the old Quarantine, viz: "Description and Specification for the Artificial Island Proposed for Quarantine Purposes by the Commissioners of the State of New York," dated New York, Dec 31, 1858, and Assembly Document No. 19, "Communication from His Excellency, the Governor, transmitting papers in relation to Quarantine at the Port of New York," dated Albany, Jan. 11, 1859.

From the first of these we learn that the original plan was to have an island constructed on Orchard Shoal in Raritan Bay. The other consists of twenty letters and official reports, transmitted to the New York State Assembly by Governor King, giving a complete history of the burnings of the quarantine stations, first at Seguin's Point, May 6th, 1857, and subsequently at Tompkinsville, Sept. 1st and 2nd, 1858, with the legal questions involved and ending with the suggestions and preliminary plans and specifications for the construction of an artificial island, as indicated in the pamphlet first mentioned. These pamphlets are supplementary to those relating to the same subject, donated by the late William Olliff and mentioned at our meeting of Dec. 14th, 1895.

Mr. Eric T. King called attention to the dangerous character of the peat bog at Fort Wadsworth station, described at our last meeting. On Monday the 6th inst. Mr. Patrick Quinney was drowned while attempting to cross the low portion of the road. He was evidently caught in the mud and sank, his body remaining submerged until the following Friday.

PROCEEDINGS

OF THE

NATURAL SCIENCE ASSOCIATION

OF STATEN ISLAND.

VOL. VII. No. 6.

APRIL 8th, 1899.

The regular meeting of the Association was held at the residence of Dr. Arthur Hollick, New Brighton. In the absence of the President Mr. J. B. Hillyer was elected chairman *pro tem*.

The following paper by Mr. L. P. Gratacap was read :

THE SIGNIFICANCE OF THE ACCUMULATION AND DISTRIBUTION OF BOWLDERS ON THE NORTH SHORE OF THE ISLAND.

A surface survey and a mere ocular estimate seems to show that the trap bowlders, and indeed bowlders of all sorts are numerically greater on the north shore of Staten Island than through its interior region or south of its hills. The back and flanks of the morainal hillocks do not display so noticeable a collection, nor anywhere is the sprinkling of *large* masses of angular and transported rocks as striking. But on the northern side of the Island there is observable as well a local restriction, and were one to actually count the distribution of bowlders, determining their prevalence per acre, the observer would probably be forced to admit that from West New Brighton to Stapleton, and from the north shore inland for about one mile, the bowlders attain their greatest numerical density. While with still further concentration of attention the hillsides back of New Brighton, to West New Brighton and the adjoining shores, would become pre-eminent as the region where bowlders appear more thickly deposited. Building, railroad construction, fence making, etc., have greatly disarranged and diminished the impressions vividly left in my mind many

years ago, before the present era of metropolitan excitement and development began, but still the contrast to-day seems appreciable between this section and the areas east, west and south of it, as regards their respective boulder populations. These bowlders are for the most part superficial, being on the surface, half imbedded in the underlying earth, or found ten to twenty feet below the surface.

Taken in connection with the admitted lower level of the continent in glacial days they strongly impress the observer as ice-raft or iceberg transported fragments. It is not difficult to imagine that during these long years when, with intermittent advances, the great ice sheet shrunk and receded northward, detached portions, laden with a rocky burden, floated from its crumbling edge and, carried southward, stranded on the half-emergent borders of our islet, then a post glacial shoal, shallow, or reef. The well established course of translation would have been down the valley of the Hudson, or down the more western channels, formed in the Triassic trough, in the present valleys of the Passaic and Hackensack. The bergs or ice-rafts descending by the latter course would have been carried eastward through the preglacial channel of the Kill von Kull, and here colliding with those descending the Hudson, all reaching Staten Island by either avenue, would have stranded on the protuberant point of the Island, now represented by Stapleton on the east to West New Brighton and Mariners' Harbor on the west, and approximately over this arena the greater number of these erratics would

have been dropped.

And in fact the inference that these surface boulders are ice-raft or iceberg pilgrims seems strongly warranted when we consider their sporadic nature. They are not shoved up into hummocks or ramparts; they do not, as a rule, show marks of englacial attrition or other abrasion; they certainly are not ground-moraine enclosures; and if carried on the upper surface of the glacier and dropped by its melting, why should not their prevalence over the whole island to the same extent, as on, what we may now call, "the boulder point," of Staten Island, be equally attested.

The retrospective glance this affords us is not without interest. The icebergs drifting southward, congregating in frigid clusters over our north shore, and these, rocked in the alternating tides of the ocean and the currents from the north, slowly parting with their cargoes of transported trap, granite, and sandstone.

Dr. Arthur Hollick read the following review :

RECENT LITERATURE RELATING TO STATEN ISLAND.

In a paper on "*Prehistoric Art*," etc, by Thos. Wilson, in the *Annual Report of the Smithsonian Institution and U. S. National Museum, for the year ending June 30, 1896*, but only recently issued, is a reference to the Indian stone head in our collection, found near the Fingerboard road and described in our *Proceedings of May 10th, 1884*, which was sent to the Smithsonian Institution some years ago and a cast made from it. The reference is on p. 481 and accompanying it, on Plate 52 the head is figured in profile, in company with that of a similar one found in Monmouth Co., N. J. The Museum catalogue number for our specimen is 98133.

This is the second time that our specimen has been described and figured in the Smithsonian publications. The first time was in the *Annual Report for 1886, Part II. U. S. National Museum*. The description is on p. 101 and the figures on Plate 1., representing it both full face and in profile.

PROCEEDINGS

OF THE

NATURAL SCIENCE ASSOCIATION

OF STATEN ISLAND.

VOL. VII. No. 7.

MAY 13th, 1899.

The regular meeting of the Association was held at the residence of Mr. Alexander Perry, New Brighton.

In the absence of the President Mr. Lester W. Clark was elected chairman *pro tem*.

The Secretary called attention to the recent death of Mr. J. Kadletz, one of the oldest members of the Association, who always took an active and practical interest in its welfare. On motion the Secretary was instructed to record in the minutes an expression of the loss which the Association has sustained in his decease and to transmit to his family a copy of the Proceedings containing it.

Mr. E. C. Delavan read the following paper, illustrated by means of maps and tracings of old and existing property lines:

THE EARLY HISTORY OF ST. ANDREW'S CHURCH YARD.

St. Andrew's Churchyard, an ancient landmark no less interesting than picturesque, lies at the head of the Fresh Kill upon a knoll rising from a cove of reedy meadow. Viewed from the nearby hillside the light green of the calamagrostis against the darker green of the meadow grass is a marked feature of the landscape.

While the churchyard has been somewhat enlarged in comparatively recent years—for I have been informed by Mr. Richard Latourette that a strip of land along the northern edge was given by his uncle, Mr. John J. Crocheron, and that for this purpose the course of the old road was changed—its larger or southwestern portion has probably remained unaltered since William Tillyard and his wife gave

for the purpose of the building of an English Church a portion of the land which Governor Andros had granted by crown patent to James Hubbard thirty-one years before.

Captain James Hubbard, of Kings County, was a surveyor of some eminence (14 Colonial Documents S. N. Y. page 746.) Governor Edmund Andros on December 28th, 1680, granted to him a patent for a tract of land "being at the head of the Fresh Kill on Staten Island, beginning at the Easterly side of a little cove of reedy meadow, extending cross the creek direct North one hundred rodd and from thence direct East two hundred and fifty-six rodd, and from thence due South one hundred rodd and from thence due West two hundred and fifty-six rodd to the said little cove. Containing 160 acres of land with 16 acres of fresh and salt meadow to be laid out where most convenient." (5 Patents 18, Secretary of States Office, Albany) As the unit of grant was 80 acres, this patent covered two lots.

The location of the cove relatively to the body of land so granted is made quite clear by a surveyor's rough draft preserved in the office of the Secretary of State. (1 Land Papers 207.)

Captain Hubbard died prior to May 24, 1697, for on that day James Hubbard, of Kings County, on Nassau Island and Province of New York, describing himself as yeoman, and as "Administrator to the Late deceased Captain James Hubbard of the aforesaid county and province, Gentl," conveyed to William Tillyard the Northerly quarter of the two lots described in the patent mentioned, a strip twenty-

five rods in breadth and two hundred and fifty-six rods in length, containing forty acres of upland together with four acres of fresh and salt meadow to be laid out where most convenient and "all the houses, barnes, stables, orchards gardenas, * * * feedings, commons, pastures and meadows to the said forty acres of land belongeth or in any mannour of waies appertaineth" etc. (Liber B, of Conveyances, page 279, Richmond County Clerk's Office.)

We thus learn that this land was settled and cultivated prior to 1697.

While there is no recorded deed from James Hubbard to Elias Hubbard, the latter on December 9th, 1699, conveyed to James Fitcheth, or Fitchett, or Fitcher, the remaining three quarters of the two lots in question together with all houses, barns, stables, orchards, and other appurtenances, by a deed which contained a covenant of good right to convey and the execution of which was witnessed by Peter Corteljau and James Hubbard, (B. 370.)

On December 11th, 1699, James Fitcher, and Sara, his wife, conveyed to James Hanse Dye, a parcel of sixty acres of land 75 rods wide and 128 rods long "situated on Staten Island at ye head of ye fresh kill at ye rear of ye Land of the said James Fitcher * * * * it being the equall half of ye land which the sd. James Fitcher hath bought of Elias Hubbard by deed bearing date the ninth day of Decemb. an. que dom. 1699" and also four acres of meadow. (B. 371b.)

How James Hanse Dye acquired title to the remaining half of the southerly three quarters of the lots in question does not appear, but on March 18th, 1703, he with Mary, his wife, conveyed the entire three quarters mentioned, containing 120 acres, to Matthew Decker, (B. 478,) for the sum £206.0.0. current money of the Province of New York.

On March 6th, 1707, Matthew Decker and Eve, his wife, in consideration of £100.0.0 current money of the Province of New York, and by deed wherein is recited the patent of Governor Andros to Captain James Hubbard of 28 December, 1680, and the deed made by James Hance and

Mary, his wife, to Matthew Decker on March 18th, 1703, (B. 371,) conveyed to William Tillyer "all yt the westernmost moyety or full half of the above recited tract of land and premises," (i. e. the tract described in B. 371,) "with the appurtenances together with all the moyety or one full half of the above recited salt and fresh meadow with all and singular the houses, barnes," &c. The execution of this deed was witnessed by Alexander Stuart and Lambert Garrison, (B. 550.)

The deed of gift whereby William Tillyer and Mary, his wife, donated the land for the building of an English Church is here given according to its tenor, as it is found recorded in Liber B of Conveyances at page 584.

"The following deed of Gift was Recorded for the freeholders and Inhabitants of the County of Richmond August ye 8th, 1711.

To all Christian People, To Whom these presents shall come, William Tillyer and Mary his wife, of the County of Richmond and Province of New York, Esqrs., sends greeting: Know ye, that wee, the sd. William Tillyer and Mary his wife, for and in regard of the reall Love, a true Zeall and Sincere affection that we doe bear to the Church of England which is by Law Established And for the encouragement of Building of an English Church in Staten Island for the County and Province aforesd in America as * * * by Law Established wee doe freely, clearly, and absolutely give ratifie and Confirm unto Caleb Fitchett, Esqre., one of her Majesties most Honorbl Council for the province aforesaid and Joseph Billopp, Nathl Britton and Lambert Garrison, Esqrs., and Alexr. Stuart, Gentl., all of the above county and province, a Certaine parcell of Land in the County of Richmond aforesaid, Lying on Kalres Neck at the head of the ffresh Kill beginning at a small stake and heap of stones and runs towards the Creek South, one chain seventy five links then East, three chaine twenty links to the Highway, thence by the Highway north eighteen degrees east on chaine thirty links thence North thirty seven Degrees

West Sixty two links thence West, to the place where it begun. Containing two roods and fifteen perches. To have and to hold the sd parcell of Land for ever to the said Caleb Hethcoat, Joseph Billopp, Nathl Britton, Lambt Garrison and Alexr Stuart to them their heirs and assigns for ever In behalfe of all the ffreeholders and Inhabitants of the above said county as also to them and every of them their heirs and assigns for ever all of the above parcell of land to be, remaine and continue from the date hereof and for ever for Building of an English Church and Church yard on Burying place upon the said Land for the publick benefitt as well of the Inhabitants of the said Island as for these above named Gentlemen—And to noother use, the said Lands granted to be applyd but for the sole and proper benefitt of the Church of England as by Law establishd. And the sd William Tillyer and Mary, his wife, doe bind themselves their Heirs, Exeors and Adminrs That they shall maintain and defend the said parcell of Land In the Quiett and peaceable possession To them the sd Caleb Hethcoat, Joseph Billopp, Nathl Britton, Lambt Garrison Alexr Stuart and to the said ffreeholders and Inhabitants of the said County, to them and every of them three heirs and assigns forever As for ffee simple agst all manner of persons shall * * * * * and for ever by these presents defend.

In Testimony Whereof the sd William Tillyer and Mary his wife have hereunto sett there and fixt there seals.

Dated this Sixth Day of August In the tenth year of Her Majesties Reign Anno q Domini, 1711.

Sigillant et deliverant
in presence of
AENEAS MCKENZIE,
HENRY BERRY.

WILLIAM TILLYER, [L. S.]
her
MARY X TILLYER, [L. S.]
mark

his
JOHN I M MORGAN
mark
his
HANS X LAWRENCE
mark

Memorandum this 6th Day of August, 1711, Came before me Benjamin Cooper, one of Her Majesties justices for the County aforesaid William Tillyer above named and did acknowledge the above deed of gift to be his voluntary Act and Deed And his wife Mary did also appear before me and being privately examined whether she was compelled or threatened to sign this deed Acknowledged that she did sign it freely and Voluntarily without compulsion.

Acknowledged before me

BENJAMIN COOPER."

In pursuance of the instructions of Queen Anne given at St. James the 30th of December 1709, Robert Hunter, Esq., Governor, &c., Thomas Byerly, Esq. Collector and Receiver Generall, George Clark, Esq., Secretary, and Augustine Graham Esq, Surveyor Generall of the Province of New York on June 29th 1713 "let out for the Reverend Aeneas McKenzie. Minister, of Stateu Island, in Richmond County, Ellis Duxbury, Thomas Farmer, Augustine Graham, Joseph Arrowsmith, Lambert Gerretson, Nathaniel Brittain, William Tillyer, Richard Meirell, John Morgan and Alexander Steward, all freeholders and of the principall Inhabitants of the said Island, in communion of Church of England as by law established Incorporated by the name of the minister, church wardens and vestry of St. Andrew, in the County of Richmond, and to their successors for ever, all that Stone Church called St. Andrew, & the tenement and lott of ground whereon it is built, situate and being on Charles Neck at the head of ffresh Kill, beginning at a single stake and heap of stones and runs from thence toward the Creek South one chain and seventy five links, thence East three chains twenty links to the highway, thence by the highway North eighteen degrees East one chain thirty links, thence North thirty seven degrees West sixty two links, and thence West to the place where it began, containing in the whole two rood and fifteen perches, formerly granted by William Tillyer for to build the said church upon and for a cemetery and churchyard. * * * * *

(B. 629.)

The following paper by L. P. Gratacap was read:

NOTE ON *Erythronium Americanum* KER.

In examining the flowers of *Erythronium Americanum* Ker., the well known "Yellow Adder's Tongue," in a wet swampy depression on the east side of Pine Hill, and just southwest of Clove Lake, I have noticed an adjustment in the periods of pollination of the anthers of some interest. I venture to write out the note since I cannot recall, and a slight search in the literature fails to reveal, that the process has been hitherto recorded.

The flower of the "Yellow Adder's Tongue," as is well known, is liliaceous in structure, and the tripartite arrangement of its sepals, petals, stamens and pistil, is perfectly obvious. The anthers rise hypogynously around the pistil, which at first they exceed in height, but to which they approximate as they ripen and undergo a longitudinal shrinkage of the greatly extended anther lobes. Usually the six anthers seem nearly identical but an examination of the earlier stages of flowering show that the anthers, in regard to their periods of pollination and maturity, fall into two groups of three each, their members alternating with each other in the flower.

The first group is in full pollination when the involuted edges of the anthers of the second group are still unwrapped. This was the fact noted and an examination of a number of flowers accentuated and repeated this diversity of maturation. There is room here for further study in relation to the synchrony of the of the two groups of stamens and the pistil, but whatever the details of this disparity of period are, the generalization seems warranted that the device is in the order of *economy* by which the energy of pollination of the entire flower is usefully separated into two cycles.

The division was sharp and even, three stamens maturing and withering together and three, their alternates, following in exact sequence.

The irregular ripening of the anthers is familiar in many flowers or all, but the particular interest in this case, possibly true of all lilies, is the even division of the anther periods, in analogy with the tripartite arrangement of the plant.

MINOR NOTES.

The Association has received from Mrs. A. C. Wood, of West New Brighton, through Mr. J. B. Hillyer, part of vol. I, No. 25, of the *Richmond County Mirror*, dated July 7, 1838, containing an account of the Fourth of July celebration held that year on Staten Island, a celebration which seems to have been a notable one in many ways. Beginning with exercises in the village church at Port Richmond opened with prayer by the Rev. Mr. Brownlee, including in the program an oration by Ogden P. Edwards and the reading of the Declaration of Independence by Major George Howard, "a vast concourse of people, greater than upon any former occasion on the Island, witnessed the proceedings of the day," which concluded with an elaborate concert by a local amateur band (Mr. Barrett's) and a parade of the Militia. A banquet followed in a marquee in the rear of the Port Richmond Hotel at which 200 covers were laid; the number of toasts, forty-two, gives an idea of the length and importance of the banquet and an interesting feature of the list is the number of old Staten Island names contained therein; Dr. Ephraim Clark, Maj. Gen. Van Beuren, Goodrich, Cropsey, Little, Vermilye, Gen. Denyse, Dixon, Hitchcock, Hagadorn, Howard, Edwards, Arnsley, Capt. Wood, Judge Coddington, Capt. Hungerford, Crocheron, Van Pelt, Barrett, Miller, are some of the many familiar names that appeared. The name of Washington, at that time more than a memory, the recent death of Lafayette, the recent achievements of the Navy in the war of 1812, Jackson, as President of the United States, Tompkins, as Governor of New York, patriotism, rampant and vigorous in thought and expression—all these impress the reader of the stained and faded sheet.

Mr. Thos. Craig exhibited a living specimen of *Batrachospermum moniliforme*, found by Messrs. Wm. T. Davis and Louis Joutel, in a stream at Oakwood—a fresh water alga not before recorded from the Island.

PROCEEDINGS

OF THE

NATURAL SCIENCE ASSOCIATION

OF STATEN ISLAND.

VOL. VII. No. 8.

JUNE 10th, 1899.

The regular meeting of the Association was held at the residence of Mr. J. B. Hillyer, West New Brighton.

In the absence of the President Mr. Hillyer was elected chairman *pro tem*.

Dr. Arthur Hollick gave the following
NOTES ON DEEP WELLS, AT PRINCE'S BAY
AND HUGENOT.

We are all familiar with the fact that Cretaceous strata outcrop at the surface in the vicinity of Kreischerville and that theoretically they underlie the whole of the plain region south of the serpentine ridge and the Fresh Kills marshes, but they are everywhere so covered with superficial deposits that, except in the Kreischerville region, we know but little in regard to them.

Recently, however, I received from Mr. A. W. Johnston, of Prince's Bay, a sample of fine micaceous, sandy clay, identical with the "kaolin" of Kreischerville, which was obtained at a depth of about 130 feet, in a test well driven near the S. S. White Dental Works, in 1886. Following is the record, kindly sent at my request :

Surface, 4 ft. above tide level.	
Sand, 16 ft.	16 ft.
Coarse sand and gravel, (water brackish, flow good), 15 ft	31 "
Soft mud, 25 ft.	56 "
Coarse sand and gravel, (water salt), 14 ft.	70 "
Mud, 50 ft.	120 "
Fine sand, 1 ft.	121 "
Hard pan and gravel, 3 ft.	124 "
Fine white sand ["kaolin"], (no water), 23 ft.	147 "
Clay at bottom	

On May 30th I visited the new resort at Arbutus Lake and found a well being driven, on the strip of beach between the lake and the salt water. At the time of my visit a depth of about 220 ft. had been reached and samples of the material pumped out from that level showed

"kaolin" similar to that from Prince's Bay. No water had been struck.

These and the strata below them are unquestionably the equivalents of those in New Jersey, where the depth at which water-bearing strata may be found in any locality can be predicted with reasonable accuracy, and there is but little question that a careful study of and calculation from the facts now in our possession would result in at least an approximate location of the depth at which certain of these strata should be found on Staten Island. It may be incidentally mentioned in this connection that two calculations for the region near Prince's Bay, each based upon a different series of facts, gave 280 ft. and 312 ft. respectively, as the probable depth at which a recognized water-bearing stratum should be struck.

This is not only a matter of concern to those who are interested in the two wells in question, but it is of far-reaching importance in connection with the future water supply of all Staten Island, as there is no doubt that we must sooner or later abandon our present superficial sources and depend upon deep wells in the coastal plain region.

For those who may be interested in the subject a comprehensive and exhaustive discussion may be found in N. H. Darton's "Artesian Well Prospects in the Atlantic Coastal Plain Region" (Bull. U. S. Geol. Surv. No. 138.)

Reports by Lewis Woolman, on artesian wells, may also be found in the annual reports of the New Jersey Geological Survey for 1895-1897.

On motion the Association adjourned until the second Saturday in September.

PROCEEDINGS

OF THE

NATURAL SCIENCE ASSOCIATION

OF STATEN ISLAND.

VOL. VII. No. 9.

SEPTEMBER 9th, 1899.

The regular meeting of the Association was held at the Staten Island Academy.

Dr. Arthur Hollick exhibited specimens and read the following paper :

NOTES ON THE GEOLOGY AND BOTANY OF THE FOX HILLS GOLF LINKS.

During the present year the Staten Island Cricket and Baseball Club secured control of the tract of land between Vanderbilt avenue and the railroad and proceeded to develop it for a golf links. It is a typical morainal region, consisting of rolling hills and basin-like depressions, in which latter a considerable amount of surface water accumulates, forming swamps or shallow ponds. Amongst those which have received names may be mentioned Clifton Park Pond, Radcliffe's Pond, Brady's Little Pond, Wood Pond and Swell-belly Pond, although most of them were ponds only in time of rainfall or for a brief period afterwards. In developing the tract for golf purposes it was necessary to drain these depressions and trenches were dug through them which carried off the water and left the old bottoms exposed both superficially and in section and caused them to dry out to a greater or less extent.

One was found to contain a coarse peat, which was trenched to a depth of about four feet in places without reaching the limit of the deposit. After the water had been drained off the peat dried rapidly and a ground fire was started which burned for several months. This peat is composed of the remains of all kinds of swamp vegetation, including a fair proportion of *Sphagnum*, but it contains considerable inorganic matter which has been

washed in as silt or blown in as dust from the adjoining hills, as may be seen from the composition of the ash which remained after burning. This is a fine silicious powder, but contains many grains as large as pins' heads.

In another depression was found an extensive deposit of branches, logs and stumps of trees, the latter in place and much of the material in the form of brown lignite. This entire deposit is covered to a depth of about two feet with surface soil having the same appearance and composition as that of the hills. Whether this old forest was part of that which covered the tract up to about the year 1860 is a question which cannot be answered by means of the facts now in our possession, but the conditions of burial and the lignification of the wood, seem to indicate that it was older. There is no record as to whether the surface soil is a natural deposit or whether it may represent an attempt to fill up the depression some time ago nor is there conclusive evidence that it is a natural layer.

One comparatively deep little pond proved to be of considerable interest as it contained a very fine deposit, almost destitute of organic matter, in which impressions of leaves of forest trees are beautifully preserved. These were not observed until after the mud had been broken up by a plow and the fragments hardened by exposure into a firm sandy clay. Inasmuch as no trees have been growing within several hundred feet of the pond during the past thirty or forty years these impressions must represent either the leaves of trees which grew around it that length of time since, or

else such leaves as were blown in from a distance during more recent years. I am inclined to think that the latter is the case and that a large part of the mud was also due to æolian action, as it is finer than water-transported material and is quite different from the largely organic sediment of other shallower depressions. The ordinary bog silt is much darker in color and always contains the roots of living and dead vegetation to a greater or less extent. During dry, windy weather the process of denudation by æolian action is perfectly obvious on the hills, and it may be readily appreciated that in the lapse of thirty or forty years the amount of dust blown into a pond in such a location would be considerable.

The surface soil on the hills is similar to that of deforested portions of the moraine elsewhere in the vicinity. All the humus and forest loam which formed the surface soil when the region was wooded has been washed or blown into the hollows, along with much of the finer inorganic soil, leaving the present surface rough and gravelly, in which red Triassic sandstone and shale are particularly conspicuous elements. The boulders are all of comparatively small size and in fair abundance, a large majority of them being diabase, evidently derived from New Jersey, and a considerable number of quartzose limonite, from the nearby serpentine ridge of the Island. The scarcity of limestone boulders and other erratics from distant areas is perhaps worth noting, as well as the total absence of Cretaceous or Tertiary material, although the hills of the morainal front, not more than a mile further south, contain a conspicuous amount of gravel and clay of Cretaceous and Tertiary age and numerous limestone boulders.

It would seem as if the first advance of the ice, carrying with it the rock fragments from the more distant regions, had also eroded and shoved ahead the limited Cretaceous and Tertiary deposits of the Island, leaving these to form the frontal range of hills near the Fingerboard road, Sand lane and Richmond avenue, and

that in the subsequent recession the ice deposited its load over the previously eroded area and formed the hills now under consideration. In all the cuts thus far made through these hills nothing but boulder till and gravel has been found.

As might be expected the surface drainage is more or less complicated, but it all finally finds an outlet into the water course which flows to the north and east and finally discharges near the old Stapleton landing. A well defined water shed may be observed just in the rear of the club house, where several small pond holes occupy the summit of a ridge. Part of the water which accumulates in these flows into a water course which discharges near the old Clifton landing and part flows into the Stapleton water course. A very slight cut or fill would easily divert the water at this point in either direction.

* * * * *

The vegetation of the ponds and swamps presents no features of special interest and it is probably about the same now as it was years ago. I was curious, however, to learn what kind of vegetation would appear after the old pond bottoms had been drained, plowed, harrowed and rolled. The aquatic vegetation (*Pontederia*, *Sagittaria*, &c.) was entirely obliterated, as were also the several species of *Carex* and *Scirpus* which were formerly abundant. In place of these, and practically to the exclusion of everything else, there appeared a rank growth of *Panicum Crus-galli* L. and *P. proliferum* Lam. which grasses, with constant mowing, now form a coarse carpet-like covering, the long stems spreading out laterally and lying flat on the surface.

On the higher ground, wherever the surface has been denuded or where subsoil has been spread, *Panicum proliferum*, *P. sanguinale* L. and *P. glabrum* Gaud. seem to be the only species which have been able to take hold in the sterile soil.

On the dry hill tops a peculiar vegetation, adapted to the changed conditions, has taken possession. The former forest vegetation has entirely disappeared and

in its place are barren-ground grasses and an abundance of *Aster ericoides* L. Early in the season *Danthonia spicata* Beauv. was quite prominent, together with *Agrostis scabra* Willd. and the erect simple form of *Panicum dichotomum* L. At the present time this species has assumed its densely tufted autumnal form and *P. capillare* L. has become the most abundantly represented species. The most conspicuous grasses are *Aristida dichotoma* Michx. and *A. gracilis* Ell., which cover large areas on the driest parts of the hills, where the purplish color of the latter species gives a peculiar and characteristic appearance to the surface.

On the lower slopes and levels, where the ground is richer, *Agrostis vulgaris* With. is the prevailing species, but it becomes less and less abundant and finally disappears almost entirely as the higher and more barren parts of the hills are reached. With the exception of this latter species the prevailing grasses are either coarse and laterally spreading, like *Panicum proliferum*, *P. sanguinale*, &c., or else they grow in isolated tufts which do not coalesce into an even mat or turf, such as *Danthonia* and the *Aristidas*. What the ultimate effect of constant mowing and rolling may be has yet to be learned, but the problem of making and maintaining a close erect turf is one which it is necessary to solve and while it would be a hazardous experiment to destroy the

species which are best fitted to thrive under the existing conditions, the experiment might be tried of harrowing top dressing and fertilizing and introducing species of *Agrostis* and *Poa* to gradually replace them.

RECENT LITERATURE RELATING TO STATEN ISLAND.

Old Billop Mansion to be a Public Museum. N. Y. Herald, Sept. 3rd, 1899.

An article to the effect that Dr. John C. Holmes is authority for the statement that the Billop house at Tottenville is to be made a public museum of Revolutionary relics. A good picture of the house, viewed from the water front, accompanies the article.

Some Features of the Drift on Staten Island, N. Y. Arthur Hollick, Ann. N. Y. Acad. Sci. Vol. xii. (1899) pp. 91-102; pl. i.

This paper was first read before the Geological Society of America and published in abstract in Science, Oct. 7th, 1898. It now appears in full with a map showing the known and inferred morainal limits. The most important feature of the paper is the lists of fossils which have been found in the Drift. These contain 112 Palæozoic and 42 Mesozoic species, all identified from the material in our collections and noted from time to time in our Proceedings, but brought together in sequence in this paper for the first time, with the nomenclature revised to date.

JAN 22 1902

PROCEEDINGS
OF THE
NATURAL SCIENCE ASSOCIATION
OF STATEN ISLAND.

VOL. VII. No. 10.

OCTOBER 14th, 1899.

The regular meeting of the Association was held at the Staten Island Academy, with the president in the chair.

Mr. Wm. Allaire Shortt, Tompkinsville, was elected an active member.

Dr. Arthur Hollick exhibited cones of white spruce and a broken molar of a mastodon, and read the following paper:

A QUATERNARY LAKE DEPOSIT IN THE
MORAVIAN CEMETERY.

In our last Proceedings I mentioned the discovery of a buried forest, under what appeared to be a layer of bowlder drift, in a morainal basin at the Fox Hills golf links. Since that fact was recorded I became interested in what appeared to be a similar deposit in the Moravian Cemetery, where for some time past the work of cleaning out a swamp has been in progress, in the rear of the Kunhardt Mausoleum. The surface consisted of peat and a black organic mud, such as may be seen in any swamp where decaying vegetation has accumulated, but below this was a more sandy deposit and when this was reached a quantity of logs and large branches were brought to light and the similarity to the Fox Hills material was at once apparent. There was, however, nothing to indicate that these were anything more than the remains of a comparatively recent forest growth. It was not until a layer containing a large number of small cones was reached that I began to realize that it must represent a period in which different conditions existed from those which now prevail here. A careful examination of the cones showed them to belong to the white spruce (*Picea Canadensis* B. S. P.)—a tree of

northern range, which does not now grow further south than northern New York, Vermont, New Hampshire and Maine—and this fact naturally led to the suspicion that at least the lower portion of the deposit might be of Quaternary age.

On inquiry, the superintendent of the cemetery, Mr. N. J. Ostrander, volunteered the information that "some bones" had been dug up which he very kindly gave to me for the Association. They prove to be the broken pieces of a mastodon's molar, thus proving beyond doubt the Quaternary age of at least the lower part of the deposit and justifying the belief that even the logs and branches above are probably the remains of a forest growth which antedated that which is now in existence in the vicinity. It also strengthens the suspicion that the Fox Hills buried forest may also represent former similar conditions.

The swamp, which covered a superficial area of about 3,500 square feet, was formerly rather a conspicuous feature, by reason of its pool of dark coffee-colored water and quaking margin of peat and sedges, occupying a depression in the rolling morainal surface, filling up and overflowing in time of rains and becoming almost or completely dry in periods of drought. Its appearance, however, became incongruous with the recent development of the Cemetery and the decision was reached to drain off the water, dig out the mud and allow the excavation to fill up again as a pond.

The location is about 1,200 ft. from the southern border of the moraine, at an elevation of about 120 ft. above tide level.

The depression is roughly cone-shaped, with steep, almost perpendicular sides on the east and north, from which the bottom slopes upward irregularly to the south and west. The deepest part is in the northeast corner, where the entire deposit was about 25 ft. in thickness. Every particle of this has been taken out and the sides and bottom of boulder drift are exposed to view.

The surface deposit was of fine moss peat and a coarse peat composed of all kinds of swamp vegetation, extending out to the pond margin. Below this was a fine organic mud, extending all across the basin and forming the pond bottom. From this to the deepest part of the basin the deposit was a fine sandy silt, black with decayed vegetation, distinctly stratified, and the lower part more or less compacted.

The spruce cones were at a distance of about 10 feet from the surface, distributed in considerable numbers in a layer about a foot in thickness, while below this was found the mastodon's tooth, at a depth of about 23 feet. The entire deposit bore every indication of having been laid down in still water in a continuous and unbroken series of layers, and inasmuch as it was in a morainal basin it must all have been post-morainal in age.

The indications are that a pond was formed in the depression in the moraine immediately after the recession of the ice

sheet and that this pond was a receptacle for dust, silt and decaying vegetation ever since; the accumulations gradually filling it up and finally converting it into a swamp with a little pool of casual water in the middle.

If we could know the rate of deposition the depth of the deposit would give us a datum for time calculation, but there are no facts available in this connection. In the lower part the layers are quite distinct and the number of layers to an inch may be more or less accurately determined, but we do not know the length of time represented by a layer so that any calculations based upon them would be mere guess work.

Incidentally it may however, be remarked that the more recent calculations by competent authorities indicate that the glacial conditions in this part of the North American continent began to disappear about 10,000 years ago, and it must have been subsequent to that time that the spruce forest covered our Island and the mastodon was a living reality here.

RECENT LITERATURE RELATING TO STATEN ISLAND.

Golf and Natural Science. N. Y. Ev. Post, Sept. 23rd, 1899. A semi-humorous article, based upon the facts in connection with the Fox Hills golf links, published in our Proceedings for September.

PROCEEDINGS

OF THE

NATURAL SCIENCE ASSOCIATION

OF STATEN ISLAND.

VOL. VII. No. 11.

NOVEMBER 11th, 1899.

The 19th annual meeting of the Association was held at the Staten Island Academy.

In the absence of the president Mr. O. P. Geoffroy was elected chairman *pro tem*.

Reports of officers for the past year were submitted and approved, as follows:

Secretary:

No. of members on roll at date of last annual report.....	91
Since elected.....	3
Deceased.....	1
Dropped.....	5
Resigned.....	6
Leaving, at date.....	82

Treasurer:

Balance on hand at date of the last annual report.....	\$246.74
Receipts.....	223.50
Disbursements.....	136.63
Balance on hand, at date.....	333.61

Curator:**Additions to the Museum:**

No. of separate donations.....	6
No. of specimens included in above.....	191

Classified as:

Botany.....	20
Geology and Mineralogy.....	112
Palaeontology.....	59

Additions to the library:

No. of societies and institutions on the mailing list.....	79
No. from which exchanges have been received during the year.....	47
No. of additions by exchange.....	268
No. of additions by subscription.....	79
No. of additions by donation.....	23
No. of separate titles included in above additions.....	76

The election of officers for the ensuing year resulted in the re-election of the former incumbents, as follows:

President, Walter C. Kerr; secretary, Arthur Hollick; treasurer, J. Blake Hill-

yer; curator, Eric T. King; trustee, Wm. T. Davis.

Mr. William Fox, West New Brighton, was elected an active member.

On motion it was *resolved*: that the regular meetings of the Association during the ensuing year be held on the second Saturday evening of each month, except July and August.

The secretary read the following paper, communicated by Mr. Chas. A. Dayton:

NOTES ON SOME STATEN ISLAND MARINE MOLLUSCA.

While living at Tottenville during the summers of 1893-95 I spent considerable time collecting marine shells on the south side of Staten Island and vicinity and dredging in Raritan and the Lower Bay, from the vicinity of Keyport, N. J., towards Sandy Hook. The opportunities for dredging in these waters are somewhat limited, for the reason that they are largely staked out in oyster beds, which could not be disturbed. I was therefore obliged to confine my dredging to the mud bottoms at the edges of the channels, at a depth of from three to five fathoms. The dredge used was a curved-toothed oyster rake, the inside lined with wire netting of $\frac{1}{8}$ in. mesh, leaving about three inches of the teeth points free.

At New Dorp, on a sandy point, at low water, I found many specimens of *Neverita duplicata* (Say) Stimps. buried in the sand, awaiting the return of the tide. On one occasion the beach was strewn with *Ensatella Americana* (Gould) Verr.,—fresh shells in fine condition. Between Oakwood and Giffords I could always find

Spisula solidissima similis Say, *Macoma* Carp., *Sycotypus canaliculatus* (Linn.) *Baltica* Linn., *Petricola pholadiformis* Lam., Gill., *Urosalpinx cinereus* (Say) Stimps., *Scapharca transversa* (Say) H. and A. Ad., *Eupleura caudata* (Say) H. and A. Ad., and one odd valve of *Tagelus divinus* *truncata* Say, *Crepidula fornicata* Lam., Speng. Numbers of *Nucula proxima* Say were found at the mouth of the Shrewsbury River, near the government dock, at Sandy Hook, and in Arthur Kill, at *heros* (Say) H. and A. Ad. Tottenville, five specimens of *Scalaria lineata* Say.

At Eltingville, at low water, *Littorina littorea* Linn. was found on stones. At Tottenville, *Littorina rudis* (Maton) Gould, and *Scalaria lineata* Say, in salt grass, and *Ilyanassa obsoleta* (Say) Stimps., in the mud at low water. At Kreischerville, on a muddy shore, I once found about fifty specimens of *Haminea solitaria* (Say) Verr., but never saw them on any other occasion. In the Drift, at South Amboy, *Tottenia Manhattensis* (Prime) Verr. were found in profusion and a few specimens of *Utriculus*.

In dredging, as previously mentioned, I found *Yoldia limatula* (Say) Stimps. in abundance; also *Callista convexa* (Say) H. and A. Ad., *Venus mercenaria* Linn., *Mulinia lateralis* (Say) Gray, *Lyonsia hyalina* Conr., *Clidophora trilineata* (Say)

NOTE.—In Sanderson Smith's "Catalogue of the Mollusca of Staten Island" (Proc. Nat. Sci. Assn. S. I., Extra No. 5, Mch, 1887) of the above recorded species the following are mentioned as rare: *Pholas truncata*, *Lunatia heros*, *Scalaria lineata*, *Haminea solitaria* and *Urosalpinx cinerea*, while the following are not mentioned at all: *Macoma Baltica* Linn., *Tagelus divinus* Speng., *Tottenia Manhattensis* (Prime) Verr. and *Utriculus*, sp? (*U. canaliculatus* (Say) Stimps?), although these last two, having been found in New Jersey only, may fairly be excluded from the Staten Island list.

A. H.

PROCEEDINGS

OF THE

NATURAL SCIENCE ASSOCIATION

OF STATEN ISLAND.

VOL. VII. No. 12.

DECEMBER 9th, 1899.

The regular meeting of the Association was held at the Staten Island Academy.

In the absence of the president Mr. Samuel Henshaw was elected chairman *pro tem*.

Messrs. Nils Bergquist, Tompkinsville and C. A. Ingalls, Port Richmond, were elected active members

The following communication was received from Mr. L. P. Gratacap:

NOTES ON THE LIMONITE BEDS ON OCEAN TERRACE.

Recently, in the work on the Island's roads, a broad macadamized avenue has been constructed over Ocean Terrace, and in the necessary re-grading of the old road the superficial earth was removed and areas of soft decomposing serpentine exposed. This serpentine, saturated with water, readily crumbles in the hand and resembles almost a green clay, but hardens upon exposure to the air. It shows in some specimens a large number of included black specks and crystals, which are magnetite, and not chromite, as far as my tests went. This mineral may have been in some cases the source of the limonitic partings which characterize some of the decomposed serpentine. To quote G. P. Merrill: "under continual alternations of heat and cold, moisture and dryness, magnetite slowly decomposes, giving rise to hydrated sesquioxides."

A little way to the east, and in fact surrounding this road at the point where the serpentine appears, are the old limonite mines. Large masses, highly silice-

ous, are exposed in some of the abandoned excavations. These masses present sun-impregnated films and crusts which indicate clearly their aqueous origin. There seems to be a necessary connection between these limonite beds and the underlying serpentine. The former are clearly preglacial, the drift covering them completely, though along the immediate indefinite line of contact there is some intermixture of drift and iron ore. The serpentine, weathering as do the green serpentines of Harford Co., Md., into a "gray brown soil which consists of 60.17 per cent. silica, 10.40 per cent. of iron oxides, 14.81 per cent. of alumina, and only 7.23 per cent. of magnesia," would have furnished just the combination of elements requisite to have formed, in basins of concentration—bogs, marshes, or shallow lakes—the siliceous limonites, the pulverulent iron soil and the occasional magnesian carbonates—the latter, I believe, not found on Ocean Terrace—which are associated with the serpentine areas on Staten Island. Indeed it is not necessary to assume water basins. The meteoric waters penetrating the decomposing caps of serpentine would leave, in time, gathered into more or less rich deposits, the freed iron oxide, assisted by a wide spread capillary action, constantly enriching and increasing the initial points of segregation.

There seem to be no evidences of pond or marsh life in these limonite beds, and their formation may have progressed under sub-aërial agencies only.

In the Gryme's Hill ore pits streaks

of talcose schist point yet more conclusively to the indigenous origin of the iron ore in the serpentine. from the New York Morning Journal of Nov. 14th and the New York Evening Post of Nov. 18th, both relating to the discovery of the Mastodon's tooth in the Moravian Cemetery, described at the

**RECENT LITERATURE RELATING TO
STATEN ISLAND.**

The secretary read newspaper articles October meeting of the Association.

PROCEEDINGS

OF THE

NATURAL SCIENCE ASSOCIATION

OF STATEN ISLAND.

VOL. VII. No. 13.

JANUARY 13th, 1900.

The regular meeting of the Association was held at the residence of Dr. Arthur Hollick, New Brighton.

In the absence of the president Mr. J. Blake Hillyer was elected chairman *pro tem*.

Dr. Arthur Hollick exhibited specimens recently collected and read the following

GEOLOGICAL NOTES.

Decomposed serpentine and associated minerals In Mr. L. P. Gratacap's paper, published in the preceding issue of our Proceedings, mention is made of an exposure of serpentine, near the old limonite mines, in a cutting on Ocean Terrace road. A similar cut has recently been made in regrading the Todt Hill road near Moravian cemetery, which has exposed a fine section through the decomposed upper portion of the serpentine, and as this locality is south of the moraine the rock has not been disturbed by glacial action nor has the surface soil been mixed with drift deposits. Every stage in rock disintegration and soil formation *in situ* may be traced, from the merely fractured rock at the base, through that which is partially disintegrated, to that in which the disintegration is complete and the rock is represented by the surface soil.

The minerals which have resulted from this decomposition are particularly conspicuous and excellent specimens may be obtained with but little trouble. Green chlorite and white talc in bands or seams, or in finely comminuted particles massed together like clay, alternate with red, brown and purplish limonite in irregular

patches or pockets, the series resting upon undecomposed serpentine below and covered by limonite soil above.

The derivation of the latter from the former may be traced from the unaltered chromite or magnetite in the serpentine, to where these minerals occur as brown specks of limonite where the rock has become talcose or chloritic, and finally to the zone of complete disintegration, where the limonite has become segregated into seams or pockets, while the rock is represented by incoherent accumulations or loose flakes of talc and chlorite. The pockets in which the limonite occurs appear to be merely irregularities in the serpentine due to decomposition by the ordinary atmospheric agencies at the points of easiest attack. They are narrow below, often extending downward into a thin seam along a joint or fracture and are broad above, so that the limonite as a whole consists of a series of irregularly wedged-shaped masses in its lower part, which merge into and form a continuous bed at the surface.

Joints and fractures in the serpentine appear to have been the initial lines of oxidation, down and from each side of which the process gradually extended, thus forming the wedge-shaped pockets and leaving an irregular surface on the undecomposed rock.

So far as this locality is concerned all the facts indicate that the limonite was solely the result of decomposition of the serpentine in place, and the oxidation of the included chromite or magnetite by the ordinary atmospheric agencies.

There is no indication that sub-surface waters had anything to do with its formation or that any part was due to sedimentation or deposition in surface waters.

Quartz crystals and chalcedony, such as are common at the Ocean Terrace locality and near Four Corners, which clearly indicate if not prove the action of thermal waters, (See paper by L. P. Gratacap in our Proceedings for Mch. 13th, 1890,) are wanting at the locality now under discussion; but quartz does occur there in a unique form, as rounded masses, having a radiating or rosette structure, and varying from single specimens the size of a pea or walnut to irregular aggregates of these as large as a goose egg. They may be found in considerable quantity, free, in the decomposed talc or chlorite, and are evidently merely another of the results of decomposition of the serpentine in place. This particular form of quartz has not heretofore been reported from Staten Island, nor am I familiar with it from elsewhere.

A magnetite drift boulder. An interesting drift boulder was found in the bed of the brook at the lower end of the Black Horse ravine, composed of magnetite, graphite and pyroxene or hypersthene. It so closely similar to certain of the Adirondack rocks that we are justified in considering it as having been derived from that region, especially as there is no other rock outcrop with which it could be identified elsewhere on the line of glacial movement towards Staten Island.

In this connection it may be of interest to recall that a boulder of labradorite, probably also derived from the same region, was found at the base of Richmond Hill some years ago and noted in our Proceedings of Oct. 10, 1885.

Fossiliferous drift boulders. A number of drift boulders containing fossils have recently been found, some of which have yielded species new to our local list.

At our meeting of last September, in

discussing the geological features of the Fox Hills golf links, I commented upon the scarcity of limestone bowlders. Since then a small specimen of Lower Helderberg age was found there, containing *Anoplothea concava* (Hall), *Trematospira costata* Hall, *Dalmanella perelegans* Hall, and *Leptæna rhomboidalis rugosa* (Hall),—the last three species not before recorded from the Island.

In the vicinity of Eckstein's brewery, at Four Corners, was found a fragment of Hudson shaly sandstone, containing a specimen of *Ambonychia radiata* Hall,—a species previously reported only from Kreischerville.

On the beach, between Woods of Arden and Arbutus Lake, three interesting finds were made, as follows:

1. Lower Helderberg limestone, containing *Orthothetes Woolworthianus* (Hall), *Spirifer macroleptus* (Conr.), *Rhipidomella oblata* Hall, *Eritonia medialis* (Vanux.) *Meristella lata* Hall, *Dalmanella subcarinata* Hall, *Dalmanella perelegans* Hall, *Leptæna rhomboidalis rugosa* (Hall) and *Orthostrophia strophomenoides* Hall,—the latter another addition to our list.

2. Oiskany sandstone, containing *Chonostrophia complanata* Hall, *Dalmanella subcarinata* Hall, *Spirifer submucronatus* Hall and *Spirifer Saffordi* Hall,—the last two being further additions to our list. This boulder also contained dismembered parts of a trilobite, apparently a *Dalmanites* but two fragmentary for specific determination.

3. Triassic shale, with poorly preserved impressions of *Loperia simplex* Newb. and a conifer, apparently *Cheirolepis Munsteri* (Schenk) Schimp. Ordinarily such specimens would be too poor to merit attention, but our local Triassic material has yielded so few fossils that even these are of interest for us. The only others in our collection are impressions of algae from the outcrop at Marine's Harbor, described in our Proceedings for April 11th, 1889,

and one specimen of *Equisetum Rogersi* Schimp. in a drift boulder found at Arrochar, described in our Proceedings for Sept. 9th, 1893.

For purposes of comparison I have here a specimen of *Cheirolepis* in green Triassic shale from Milford, N. J., and it may be of interest to note that this is likewise the only locality, so far as I am aware, at which *Equisetum Rogersi* has been found in New Jersey.

RECENT LITERATURE RELATING TO STATEN ISLAND

Silver Lake Park. N. Y. Tribune, Sun., Dec. 10th, 1899. An illustrated account of the proposed Silver Lake Park, giving the history of the act by virtue of which the boundaries were defined and the commissioners appointed; the legal

complications which ensued by reason of the passage of the Greater New York charter; matters of local history connected with the lake and its vicinity; description of the natural features, etc.

The article was doubtless called forth by the recent decision of the Appellate Division of the Supreme Court confirming the validity of the act. No mention is made, however, of the fact that the term of office of the commissioners will expire next May and hence that additional legislation will be necessary in case the park is to be constructed as originally intended.

In this connection it may be noted that a bill was prepared and has already been introduced in the Legislature, designed to obviate all legal difficulties.

JAN 22 1902

PROCEEDINGS

OF THE

NATURAL SCIENCE ASSOCIATION

OF STATEN ISLAND.

VOL. VII. No. 14.

FEBRUARY 10th, 1900.

The regular meeting of the Association was held at the residence of Mr. Thomas Craig, New Brighton, with the president in the chair.

Mr. J. V. Wright, New Brighton, and Rev. C. C. Walker, Clifton, were elected active members.

The secretary called attention to the death, on January 22nd, of Mr. Geo. W. Wright, who was one of the oldest members and one of the organizers of the Association. For many years he was well known in the community as a teacher in the public schools of Stapleton and West New Brighton and was universally respected. He always maintained an interest in the Association, although failing health in recent years rendered active participation in its affairs impossible.

On motion the secretary was instructed to incorporate the above memorandum in the minutes, together with an expression of the Association's sorrow on account of his death and respect for his kindly traits and sterling integrity of character.

Mr. Walter C. Kerr read the following account of

A DEEP WELL IN THE SERPENTINE AT DONGAN HILLS.

During the summer and fall of 1898 Mr. Ernest Flagg, one of our members, undertook to drive a well on his premises near the Country Club grounds, the elevation being some 175 feet above tide water. A 6 in. well was started and surface water was struck in moderate quantities. This, however, was cased off with 6 in. pipe and the well continued to a

depth of 100 or more feet without encountering additional water. From within seven feet of the surface this well was driven through serpentine rock, of the usual character found in our hills. The casing near the top of the well not being perfectly tight, more or less water would work down and it was therefore impossible to tell whether small streams were struck at various depths, but the well was continued to some 278 feet, or about 100 feet below tide water, without any abundant flow. Two dynamite torpedoes were then exploded in the well which is said to have largely increased the flow, probably by breaking up the rock and opening crevices. The blasts also resulted in filling the bottom of the well for a distance of some twelve feet, leaving the present net depth 265 feet. No samples of the borings were kept except at the final depth of 278 feet, which are here shown and added to the Association's collection. The general appearance of the borings, from the top to the bottom of this well, was substantially the same as of the sample here submitted, upon which microscopic examination can be made.

The well now yields a good flow of pure, clear water and a pump having a capacity of some 250 to 300 gallons per minute is said not to pump it dry.

Mr. Thomas Craig and Dr. Arthur Hollick exhibited specimens and gave

FURTHER NOTES ON THE QUATERNARY LAKE DEPOSIT IN MORAVIAN CEMETERY.

Mr. Craig exhibited under the micro-

scope a section of wood from a well-lignitized piece found in the deposit. The specimen was coniferous and apparently a species of pine, or perhaps white spruce, but the tissue was too much distorted by compression for accurate comparison.

Dr. Hollick exhibited the results obtained by macerating in water a quantity of the stratified deposit from the pond. The coarse vegetable debris floated to the top and was skimmed off, after which the water was drained away and the residue which had settled at the bottom was dried. The former consisted of fragments of twigs and cone scales of white spruce, (*Picea Canadensis* B. S. P.) bark, and some small particles of charcoal. The residue from the bottom was an exceedingly fine inorganic powder, relatively small in amount and containing a few coarse angular fragments of rock, varying in size from that of a pin's head to some as large as an orange pit. The absence of any irregularity in the layers of the deposit as a whole and the character of the material composing it, indicated a gradual and quiet accumulation by æolian agency rather than by running water and this would also infer a longer period of time

for accumulation than if due to streams depositing material in the pond.

Another interesting fact is that although the inorganic material is apparently identical with that of the moraine surrounding it the red coloring so characteristic of the latter is absent, due to the reduction of the red iron oxide by the chemical action of the decaying vegetation. In some of the coarser fragments of shale and sandstone, however, this reduction may be seen to be only superficial and the red color may be found by breaking them open. The decolorizing influence may also be seen to extend into the soil of the moraine for some distance from the limits of the pond deposit.

MINOR NOTES.

Mr. Kerr exhibited branches of the common pitch pine (*Pinus rigida* Mill.), representing shoots growing from old stumps, in which each sheath of needles was subtended by a linear bract about an inch in length. As the normal branches of the tree do not bear these bracts it was suggested that they perhaps were an indication of atavism.

JAN 23 1902

PROCEEDINGS
OF THE
NATURAL SCIENCE ASSOCIATION
OF STATEN ISLAND.

VOL. VII. No. 15.

MARCH 10th, 1900.

The regular meeting of the Association was held at the residence of Mr. Lester W. Clark, New Brighton.

In the absence of the president Mr. Howard R. Bayne was elected chairman *pro tem*.

Mr. E. C. Delavan read a paper, illustrated by maps and tracings of old surveys, on

COLONEL FRANCIS LOVELACE AND HIS
PLANTATION ON STATEN ISLAND.

The paper will be published in full as Special Number 22.

On motion it was

Resolved, That a vote of thanks be tendered to Mr. Delavan for his painstaking work and for his willingness that the results of his labors should be made a matter of public record.

MINOR NOTES.

Mr. Eric T. King exhibited specimens of Tertiary (?) sandstone and conglomerate, occurring as Drift material at Arrochar, and containing impressions of vegetation. The rock is apparently identical with that described in our Proceedings of January 9th, 1897, from the same locality, in which jointed stems and rhizomes of a grass were found. A special interest attaches to the specimens recently brought to light from the fact that they contain well defined impressions of grass leaves, which are probably referable to the same species as that to which the stems and rhizomes belong.

Mr. Wm. Fox exhibited a branch of a pine tree, showing burrows made by the pine beetle, (*Tomicus sp?*), together with a plaster cast of the markings.

Vol 23 1902.

PROCEEDINGS OF THE NATURAL SCIENCE ASSOCIATION OF STATEN ISLAND.

VOL. VII. No. 16.

APRIL 14th, 1900.

The regular meeting of the Association was held at the Staten Island Academy, with the president in the chair.

The following memorandum by Mr. Ira K. Morris was read :

AN OLD LAND MARK DESTROYED BY FIRE.

I have thought it worth while to call the attention of the Association to the fact that the unoccupied building on Richmond terrace, New Brighton, between Lafayette and Clinton avenues, belonging to Mr. Cornelius A. Hart, which was destroyed by fire on Thursday afternoon, 12th inst., was once the home of the first resident Roman Catholic priest on Staten Island.

Rev. Ildefonso Mcdrano, a native of Spain, who had conducted mission services in the old gun factory, which stood on the now vacant lot at the corner of Richmond terrace and Lafayette avenue, organized the first Roman Catholic church on Staten Island, of which there is any authentic record, in that old building, and resided but a short distance away in the once handsome dwelling, just destroyed.

The church, which became St. Peter's, was organized on the first day of April, 1839. The New Brighton Association gave the land for a new edifice, which still stands near the Pavilion Hotel at New Brighton. Father Mcdrano remained here until 1845.

Mr. Morris also presented a gavel, made from the partially lignitised wood of

an old spile, unearthed while digging the foundation for a bridge over Lemon Creek, in Westfield, with the following description :

A GAVEL MADE FROM AN OLD SPILE.

This gavel was made by ex-Sheriff Abraham Winant, of Rossville, who is an inspector of construction in the Highway Department of the Borough of Richmond.

During the year 1899 a stone bridge was constructed over the roadway on Lemon Creek, the dividing line between Pleasant Plains and Prince's Bay, in the old town of Westfield.

In preparing the ground for the stone foundation of the bridge, workmen found an oaken spile, which, so far as investigation proves, has been in the earth for fully a century.

The ground from which the spile was taken was formerly owned by the father of Mr. Israel Bedell, aged eighty years, of Pleasant Plains. He is certain that long before his time the piece of timber was inserted in the ground. Other very old citizens of Westfield claim that it had been there for over one hundred years.

I think we can form an approximately correct idea as to the date when this piece of timber was placed in the ground, from the date of the manuscript specifications for the widening and straightening of the Richmond and Amboy roads. This was written some time prior to 1774. It was read by me at our meeting of Feb. 8th, 1896, and was published in full in the Proceedings of that date, under the

title "A Document Found Among the Papers of the late Rev. Joseph Totten," to which reference may be had for details.

It seems highly probable that this spile represents a part of the material used in the improvements specified in this document, as the location of the road is practically the same now as it was at that time. The Silas Bedell mentioned was probably the owner of the land where the timber was sunk.

Dr. Arthur Hollick exhibited specimens of boulder till, gravel and sand and read the following paper :

**DRIFT AND KAME DEPOSITS ON THE LINE
OF THE SOUTH SIDE BOULEVARD.**

Recent operations on our roads have been prolific in matters of interest to the geologist. In the construction of the new Boulevard the direction taken was directly through the morainal front and cuttings were made which exposed a section of the moraine at its extreme southern edge, at the starting point near Grasmere station. To some extent the kame deposits further on were also cut through, but as these are but little above grade level the sections exposed are not extensive. However, the transition from the typical unassorted boulder till of the moraine, to the water assorted gravel and

sand of the kame deposits, may be followed step by step in the exposure, along the side of the road until it reaches the level of the salt marsh.

We have had so few opportunities to examine and study the structure and composition of the deposits south of the moraine that even these limited exposures are welcome. Those which are nearest to the moraine consist of coarse cobble stones, many of which are but little water worn. These grade into coarse gravel further on and ultimately into stratified sand, which latter often shows the characteristic flow and plunge structure of material deposited in rapidly flowing currents.

In composition the sand and gravel are mostly finely comminuted Triassic shale, with a fair admixture of quartz, granite, trap and some soapstone, in about the same relative proportions in which these occur in the till of the moraine in the vicinity. Almost the only other record which we have of the character of the deposits which enter into the composition of the plain region south of the moraine is contained in a paper by Dr. N. L. Britton, describing the material exposed in a cutting made for a drain on the Vanderbilt farm at New Dorp, which was published in our Proceedings for Jan. 14th, 1888.

PROCEEDINGS

OF THE

NATURAL SCIENCE ASSOCIATION

OF STATEN ISLAND.

VOL. VII. No. 17.

MAY 12th, 1900.

The regular meeting of the Association was held at the residence of Mr. Alexander Perry, New Brighton. In the absence of the president Mr. E. C. Delavan was elected chairman *pro tem*.

The secretary reported that Mr. Walter C. Kerr had been recently elected a member of the commission to establish Silver Lake Park, so that the Association is now represented by two members on the commission. The secretary also briefly reviewed the progress of the park movement on the Island and the part which the Association has taken in it, from the time of Mr. Kerr's preliminary presentation of the subject at the meeting of the Association, June 8th, 1895, up to the reorganization of the Silver Lake Park Commission, in accordance with the recently amended Silver Lake Park act. (Chapter 653, Laws of 1900.)

The following paper by Mr. L. P. Gratacap was read:

ARE THE KREISCHERVILLE CLAYS ALL CRETACEOUS IN AGE?

An inspection of the clay deposits at Kreischerville, and between that place and Rossville, especially in the neighborhood of the picturesque community colloquially referred to as "Africa," near the road from Pleasant Plains, reveals their separate and *fosselted* character. They suggest a continuous sheet of the clay deposits which has been sheared off, leaving here and there, quite disconnected pits or depressions filled with clay. As if in some general progressive movement,

whether by ice or floods, the irregular superficial covering had been displaced, and the deeper seated pockets which, from consolidation or their low position resisted removal, were left behind.

This pocket character of the clay beds is quite striking. Subsequent drift deposits, or even Quaternary alluvial formations, have covered them and they remain isolated incidents in the topography of that section, although they may, below the surface, have deep seated connexions. On this hypothesis they represent the stocks of former elevated knobs or ridges.

The region has been a flood plain or shore in Quaternary days. Heavy blankets of sand prevail in "Sandy Ground" and around Rossville, and sand covers in some of the clay pits. It is doubtful if all of the clay pits in this vicinity can be referred to the Cretaceous. The angular white sand, slightly micaceous, which forms the upper beds at some of the kaolin (?) pits might be reasonably regarded as more recent, and it is not clear that even the underlying clay may not be referred to the same period.

As the observer is carried by the railroad from Elizabethport to Perth Amboy he is impressed with the ridgy character of Staten Island, rising conspicuously above the levels of Seawarren and East Rahway and Maurers, where clay beds of Cretaceous age occur, and the suggestion is forcibly made that Raritan Bay, and the deep sinus northward occupies a fold or a slight synclinal trough with Staten

Island on the north and east, and Keyport, Cliffwood, Morgans and South Amboy on the south and west. Much of this apparent elevation of course is due to the terminal morainal accumulations, but is it not permissible to infer a slight marginal inflection in the Cretaceous beds, or a deformation, by which the Kreischerville beds have been sensibly raised above synchronal strata on the west side of Arthur Kill?

The hypothetical origin of these clay beds is found in the decomposition of granitic rocks. The clay sand and kaolin examined a year ago in this region presented just such an appearance as may be seen anywhere where granite is undergoing decomposition. In the geological chart of Staten Island prepared by Dr. Britton in 1880 the Archaean (?) rocks are shown encircling the serpentine and extending beyond Richmond Hill across the meadows north of Rossville into New Jersey. It seems probable that these rocks girdled the serpentine, and that

their extensive decomposition furnished material for the Triassic north of the serpentine area, as well as clay and kaolin for the Kreischerville area south of it. Examination of these clay pits, together with the superficial deposits, and further search for fossil vestiges of life in them, still opens a field for research. Dr. Hollick's results obtained from the Cretaceous beds of Kreischerville and the moraine in other parts of the Island may possibly be further supplemented and extended, especially in view of the fact that the Tertiary sands and gravels of Todt Hill and vicinity have yielded fossil vegetable remains, as recorded by Dr. Hollick.

RECENT LITERATURE RELATING TO TO STATEN ISLAND.

Staten Island Academy. N. Y. Tribune, Supplement, Jan. 28th, 1900. An illustrated historical sketch of the Academy, with cuts showing view of the exterior from the corner of Wall street and Stuyvesant place and three of the interior.

PROCEEDINGS

OF THE

NATURAL SCIENCE ASSOCIATION

OF STATEN ISLAND.

VOL. VII. No. 18.

JUNE 9th, 1900.

The regular meeting of the Association was held at the residence of Mr. J. Blake Hillyer, New Brighton.

In the absence of the president Mr. A. K. Johnston was elected chairman *pro tem*.

The following paper by Mr. Ira K. Morris was read:

THE TOMPKINS LYCEUM.

After a persistent effort, covering possibly two or three years, the Tompkins Lyceum was organized on Tuesday, January 11th, 1842. A public meeting was held at Tompkinsville, at a house "formerly known as the New York House, for the purpose of establishing a Village Lyceum and Library."

The Rev. John E. Miller, (pastor of the old Dutch Reformed Church), presided at this meeting, and George Catlin acted as secretary. At this meeting a committee, consisting of Rev. John E. Miller, Rev. William Walton, William S. Root, Francis L. Hagadorn, John M. Nixon, George Catlin and Archibald Gordon, was appointed to frame a constitution, and report on the next Tuesday evening.

This adjourned meeting was held on Tuesday, January 18th, at the same place, when the committee reported the constitution, which was unanimously adopted, and the meeting adjourned for one week.

On January 25th, the Association held its first annual meeting, and elected George Nixon, Samuel Barton, William Emerson, Francis L. Hagadorn, Thomas Standerwick, William Walton, Archibald

Gordon, William S. Root and John M. Nixon directors for the ensuing year.

On Thursday, January 27th, the Board of Directors held its first meeting and elected the following officers: George Nixon, President; Samuel Barton, Vice-President; William Emerson, Corresponding Secretary; Francis L. Hagadorn, Recording Secretary; Thomas Standerwick, Treasurer.

On January 31st, 1843, the Board of Directors adopted by-laws, which provided for regular monthly meetings on the second Monday evening of each month. The price of shares in the capital stock of the corporation was five dollars each, and the annual dues two dollars.

The Trustees were empowered "from time to time, to admit to the privileges of the library and to the lectures, for a period of not more nor less than one year, any share-holder at the rate of three dollars per annum."

Of special interest to us were the following provisions in the by-laws:

"In addition to the officers required by the statute, there shall be one Curator of Natural History, one Corresponding Secretary, and one Recording Secretary," "The Curator of Natural History shall have control over the arrangement and exhibition of all the curiosities and specimens in Natural History, presented to or deposited with the Lyceum."

Article IX. of the by-laws provided as follows:

"There shall be members of the Tomp-

kins Lyceum, distinct from the shareholders, designated as honorary and corresponding members.

"Honorary members may be chosen by the Trustees, from such as are distinguished for their attainments in literature, art or science, or such as have conferred any signal benefit on this incorporation."

In February, 1843, for some reason, unknown to the writer, the affairs of the Association began to drag, and meetings were held without the transaction of any important business, and "finally adjourned without date."

From the first annual report we also learn that "the rooms now occupied by the Lyceum have been hired for a year at one hundred and twenty dollars "

"The Librarian, Mr. Theodore Frean, has been employed to attend at the rooms daily, from four to nine o'clock p m , at one hundred dollars per annum, from the first of February, 1842."

"Mr. Joseph Taylor has also been employed as a collector of dues at five per cent., and to attend at the door of the Lyceum on lecture nights at fifty cents each night "

"The Library now consists, (1842). of 990 volumes, all of which, with the exception of the 45 volumes embraced in the Christian Library, have either been presented by donors or deposited with and loaned to the Lyceum for its use. Among the many valuable articles which have thus been deposited with the Lyceum, the Directors take occasion especially to acknowledge a fine portrait of Daniel D. Tompkins, painted by Jarvis, and deposited by the Hon Minthorne Tompkins."

The compliment of honorary membership was conferred upon the Hon Minthorne Tompkins, Rev. Orville Dewey, and James Pierce. Charles M. Wheatley, of New York, was elected a corresponding

member.

According to the report of the Treasurer, up to February 23d, 1843, besides a donation of an entire set of Harper's Family Library, there had been received: From members' dues and fines, \$296.32; from lectures, \$36.27; donation from C. Vanderbilt, \$40.00; donation from C. Miller, of Albany, \$5.00.

From the annual report of 1843, we quote :

"In this report the Directors are necessarily limited, but they cannot refrain from congratulating the members upon the success of this institution. Formed in a small village, and overlooked by the giant and flourishing institutions of the Metropolis of the New World, it has been able to secure for itself favor, even from among those who had the most ample opportunity of communing with the city libraries and availing themselves of the attractive lectures which kindred institutions in the city have such superior facilities for producing. Yet the local pride and patriotism of the people of this village and its vicinity have been sufficient to overcome all the obstacles which were incidental to our experiment, and we now have an institution which the Directors feel the highest pride in asserting to be a credit to its members and an ornament to Staten Island."

The Tompkins Lyceum was incorporated on March 19th, 1844. The officers that year were as follows: John S. Westervelt, President; Francis L. Hagadorn, Corresponding Secretary; G. W. Wheeler, Recording Secretary; George A. Osgood, Treasurer; W. C. Auderson, Curator of Natural History; Archibald Gordon, Chairman Library Committee; D. B. Allen, Chairman Finance Committee; W. S. Root, Chairman Lecture Committee; Jacob H. Vanderbilt, George Catlin, Albert Ward and A. C. Miller, Trus-

tees.

The Tompkins Lyceum flourished, more or less, for a number of years. The building which it eventually owned and occupied stood on the corner of Richmond Road and Prospect Street and was subsequently remodeled into the German Club house.

Many of the books and pictures once the property of the Lyceum are still to be found in Tompkinsville and Stapleton homes.

RECENT LITERATURE RELATING TO STATEN ISLAND.

Observations on a Woodland Fire
Wm. T. Davis. *The Plant World*, Vol. III.,

(Jan., 1900) pp 4. 5. Notes on the effects of a fire in the woods near Oakwood station in the autumn of 1892, with records of the vegetation which appeared on the completely burned areas during the succeeding seven years. *Ambrosia artemisiifolia* L (Rag weed) was the first plant to gain a foothold, but finally this gave way to several native species, amongst which were *Potentilla Canadensis* L., *Aster Nova-Angliae* L., *Solidago rugosa* Mill and *S. lanceolata* L.

Historic Farm Houses. *Mail and Express Illustrated Saturday Magazine*, June 9th, 1900. An excellent picture and brief account of the Billop House at Totteville.

PROCEEDINGS

OF THE

NATURAL SCIENCE ASSOCIATION,

OF STATEN ISLAND.

VOL. VII. No. 19.

OCTOBER 13th, 1900.

The regular meeting of the Association was held at the residence of Mr. Thomas Craig, New Brighton.

In the absence of the president and secretary Mr. E. C. Delavan and Mr. Thomas Craig were elected respectively chairman and secretary *pro tem*.

Mr. Herman Kobbè, New Brighton, was elected an active member.

Mr. William T. Davis referred to the recent death of Dr. Frederick Hollick, one of the earliest members of the Association, and, on motion, a committee was appointed to prepare a suitable minute for insertion in the records. The following was subsequently prepared:

Frederick Hollick, M. D., was born at Claverdon, England, December 21st, 1818, and died at New Brighton, August 17th, 1900.

He came to America in 1842, and after traveling extensively through the States, settled on Staten Island, where he resided until his death.

His studies in natural science and medicine were begun at the Mechanic's Institute and were continued at Queen's College, Birmingham, England, but it was not until he came to this country that he received the degree of M. D., from the Physio-Medical College of Cincinnati, Ohio.

His earlier activities were in the line of popular lectures on social and political questions and later on physiology and anatomy, in which latter connection he became widely known throughout the United States and built up a large practice as a consulting physician. He also wrote a number of popular works on physiology, one of which, "The Marriage Guide,"

has passed through 300 editions and yet commands an extensive sale. His last and most comprehensive work, "The Origin of Life," was revised and issued in its new form in 1878. These books were also translated into Spanish.

Dr. Hollick was always actively interested in scientific subjects, especially in local natural history, and it was largely due to his initiative that this Association was formed. He was one of the three persons who, in 1881, prepared a list of names of those whom it was thought might be interested in starting a scientific society in this community and he was one of the first to encourage and aid the Association when the organization was effected.

Although unable, on account of poor health, to attend the meetings, he always maintained an active interest in our work and contributed from time to time a number of memoranda for the Proceedings, especially in relation to our local flora.

Mr. William T. Davis, on behalf of the committee appointed to consider the matter of the duplication of names in many of our streets and roads, presented a partial list of such duplications, with suggestions for suitable renaming.

On motion the paper was accepted as a report of progress and the committee was requested to further consider the subject and to report at a subsequent meeting.

The following paper, by Mr. Ira K. Morris, was read:

DESTRUCTION OF AN OLD LANDMARK.

About six weeks ago another incendiary fire partially destroyed the

old building, on Richmond terrace, that belong to the past.

New Brighton, which for many years was the home of one of the most distinguished officers of the United States Navy. I refer to the Sloat mansion, now the property of ex-County Clerk Cornelius A. Hart.

The house was erected at a time when the New Brighton Association was doing so much for the North Shore of Staten Island, by inducing families of wealth and reputation to come here and make the place their home. It was originally erected back in a period when Staten Island was almost strictly a residential quarter, and when its natural beauties were so greatly admired by a class of wealthy people who desired to live in retirement. From time to time additions were made to the structure until it became quite large, its architecture being principally of the southern style.

There are few buildings on Staten Island, built during the present century, that have been the scene of more important social events than the old Sloat mansion. Admiral Sloat was a great entertainer, and delighted in having his friends from all parts of the globe sitting at his hospitable table, or at his open fire-grates in winter, or on the broad piazzas in summer.

Our older citizens well remember the dignified old officer. He took a great interest in the affairs of the Island, and made himself felt as a useful citizen and a member of the common community. Popular as a naval officer, a United States war vessel seldom came into the Port of New York, but that its officers visited "the Admiral" in his New Brighton home. To very many, the old house, now charred and mutilated, probably beyond redemption, recalls many happy memories of days and events

John Drake Sloat was born in New York City, in 1780, and entered the United States Navy as sailing master, in 1800. In the war of 1812, he was in the engagement between the famous war vessels "United States" and "Macedonian." He participated in the expedition against the West Indian pirates, in 1824-'25, and commanded the Pacific Squadron from 1846 to 1852, rendering services which aided very materially to make California a State in the American Union.

Later he was commandant at the Norfolk Navy Yard, and finally superintended the building of the famous Stevens Battery, at Hoboken. He retired from active service with the rank of commodore, in 1862, and was promoted to rear-admiral in 1866. He died in 1867.

Admiral Sloat gave several years to the work of building the Stevens Battery. The owner of it, Edwin K. Stevens, a wealthy resident of Hoboken, New Jersey, endeavored, at the beginning of the Southern Rebellion, in 1861, to induce the Government to make use of the iron-clad battery, which had been begun by Robert L. Stevens, but the offer was declined.

Edwin then left in his will one million dollars for the completion of the battery, but that amount was insufficient, and it was sold to the United States in 1874, by the State of New Jersey, to which it had been bequeathed. Congress, however, neglected to make the appropriation, and the vessel was sold in 1880, for a very small amount.

We have it on good authority that Admiral Sloat did a great deal of the work, in company with his assistants, in the once neat old mansion at New Brighton. It was his pride to make

the Stevens Battery a very "useful ornament" to the United States Navy.

RECENT LITERATURE RELATING TO STATEN ISLAND.

1. *Report upon New York's Water Supply*, etc. made to Bird S. Coler, Comptroller, by John R. Freeman, Civil Engineer. March 23, 1900; 8 vo, cloth, pp. 587 and 113 maps, plates and diagrams.

This report deals with the question of water supply for the entire area of Greater New York, including Staten Island. In Appendix No. 15, pp. 547-552, the sources of supply for the Island are discussed, and in Appendix No. 16, pp. 573-581, there is a special report by W. O. Crosby, ("Outline of the Geology of Staten Island in Relation to the Public Water Supply") in which the author acknowledges his indebtedness to certain members of our Association for the principal part of his information.

So far as Staten Island is concerned it is of interest to note that the conclusions are entirely in accord with those previously reached by our local students of the subject, as may be seen by reference to the papers which have been read from time to time before the Association [Proc. Nat. Sci. Assn. S. I., Dec. 12th, 1891; Feb. 9th, 1895; Oct. 8th, 1898.]

Thus, in regard to the sanitary aspect, the report says: "The present sources appear already taxed to the safe limit and appear liable to such pollution as the Island becomes more thickly populated, that they may ultimately have to be abandoned."

In discussing the future supply the statement is made, without qualification, that: "The outlook for securing good water in adequate quantity upon the Island itself is utterly hopeless, and it is plain that the supply which the near future demands must come

from the mainland and that it can be most cheaply brought across The Narrows from Brooklyn."

Such a scheme would necessitate a large receiving and distributing reservoir and to those who are interested in the Silver Lake Park project the following paragraph from the report may appear significant: "There is, from surface indications, and so far as one can judge without numerous test pits and borings, an excellent site for the reservoir, of any desired capacity, between the hills at or near the site of Silver Lake. The surface soil appears to be remarkably impervious, as is indeed shown by the existence of this pond."

The fallacy of this reasoning is of course apparent when the shallowness of the water is considered (maximum depth=about 16 ft. See Gratacap, Proc. Nat. Sci. Assn. S. I., Sept 13th, 1884,) and also from the fact that when the water reaches a certain level it disappears by subterranean seepage, instead of rising high enough to overflow by surface drainage. The geological structure of the Island is represented areally and in section in figs. 111 and 112 and the structure is briefly discussed, together with the known and probable water horizons, with the final conclusion that the conditions are everywhere unfavorable for the flow and storage of sub-surface water and that all such water is dependent upon the local rain fall.

In describing the Clove Valley the author introduces a theory which has not been brought forward by our local geologists and which is worthy of careful thought and investigation, viz: "The Clove Valley is, everything considered, a somewhat remarkable topographic feature, the origin of which is probably to be sought in a stream flowing southeasterly across

this area at a time when the serpentine hills were covered by the Cretaceous and Tertiary sediments * * * As this ancient stream cut down through these sedimentary deposits it encountered the resistant serpentine, into which, stimulated by a considerable fall due to the erosion of the sedimentary formations southeast of the serpentine hills, it cut a straight, narrow notch or gorge. Subsequently, when the land stood higher than now, the head waters of this hypothetical stream were, probably, drawn off by some lateral tributary of the Hudson, perhaps in the line of Kill van Kull, the downward progress of which was not retarded at so high a level by contact with the head rocks "

11. *Geological Survey of New Jersey. Annual Report of the State Geologist for the Year 1899.*

In the report upon artesian wells, by Lewis Woolman, may be found the following records of wells on Staten Island:

P. 132. "Boring at New Dorp, Staten Island, N. Y., for Charles F. Schmeidt.

"Earth.....28 feet = 28 feet
"Soapstone, soft [serpentine] 572 feet
"= 600 feet.

"No water.

"Bored well at New Dorp, Staten Island, N. Y., for William Arndt.

"Sand and gravel.....85 feet

"This well produces 10 gallons a minute at 68 feet from the surface."

P. 138. "Well on Shooter's Island,

"Southern End of Newark Bay and

"Near Elizabeth.—Depth 200 feet.

"For the firm of Townsend &

"Downey we sunk a well 200 feet deep,

"55 feet to rock, and met with very

"peculiar strata, consisting of beds of

"a yellow, hard rock, interspersed with

"layers of black slate. We drilled to a

"depth of 200 feet, but found no water.

"(These are probably the metamor-

"phosed shales overlying the Palisade

"trap sheet.—H. B. K.)"

MINOR NOTES AND MEMORANDA

Mr. William T. Davis exhibited specimens of *Rudbeckia speciosa* Wenderoth, from Tottenville, a species new to the local flora. Also a specimen of *R. hirta* L., with the disk green instead of brown.

15850

COLONEL FRANCIS LOVELACE

—AND—

HIS PLANTATION ON STATEN ISLAND

By EDWARD C. DELAVAN, Jun'r.

PUBLISHED BY THE
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FEB 5 1903

PROCEEDINGS
OF THE
NATURAL SCIENCE ASSOCIATION
OF STATEN ISLAND.

VOL. VII. NO. 15. (Special No. 22.) MARCH 10th, 1900.

COLONEL FRANCIS LOVELACE

AND

HIS PLANTATION ON STATEN ISLAND.

By EDWARD C. DELAVAN, Jun'r.

I.

The Minister Church Wardens and Vestry of Saint Andrew in the County of Richmond, under a devise contained in the last will and testament of Ellis Duxbury, deceased, went into possession of a tract of land upon Staten Island for which he and his wife Mary, in her right as the niece of Mr. Thomas Lovelace, after a long struggle, had obtained a patent from the Crown.

After the death of Ellis Duxbury this tract became known as The Glebe. (See Beer's Atlas of Staten Island, 1874, Plates 4 and 8; based upon a map entitled "Map of Edgewater and Part of New Brighton Staten Island New York Showing old Farm lines Streets Avenues Lots &c From actual surveys by George M. Root, August 1866", a copy of which is deposited in the Richmond County Clerks Office.)

The tract so known formed the north-easternmost portion of Colonel Francis Lovelace's plantation on Staten Island, which extended westerly along the Kill von Kull at least as far as Palmer Run, and included a tract once in possession of Capt. Dudley Lovelace.

Francis Lovelace's fortunes were ruined by the surrender of the Province of New

York to the Dutch. Upon the restoration of British authority his plantation was retaken by the Duke of York, who granted some parcels thereof to various persons, through Gov. Andros, and the remainder, excepting a tract occupied by Mr. Thomas Lovelace and here referred to as The Glebe, was granted to John Palmer, who conveyed it to Thomas Dongan.

Capt. Dudley Lovelace is mentioned as a commissioner to grant lands at Hurley, in Ulster County, and otherwise. (*2 Brodhead's History of The State of New York*, 167, 184; *13 Documents Relating to the Colonial History of The State of New York—Col. Doc.—401, 443 et seq.; 452, 462.*)

Mr. Thomas Lovelace was active in the affairs of the province during Governor Francis Lovelace's administration and served as sheriff of Richmond County during the year 1684-5. (*2 Bryant's History of The United States*, 1st edition, 345; *2 Brod.* 172, 188, 206, 207; *Civil List of The State of New York*, edition of 1886, 312, 463; *12 Col. Doc.* 486; *14 id.* 639.)

The relationship of Francis, Dudley and Thomas Lovelace does not clearly appear. Francis, the Governor of the

Province of New York, is said to have been the son of John, Lord Lovelace, Baron of Hurley; (34 *Dictionary of National Biography*, 166; *Appendix, Part 1, post, p. 58 et seq.*), which statement has been questioned. (2 *Wilson's Memorial History of The City of New York* 96; *post p. 59.*) Captain Dudley Lovelace is referred to as the brother of the governor. (13 *Col. Doc.* 447.) So also is Mr. Thomas Lovelace. (2 *Mem. Hist. C. N. Y.* 96.) The subject of the Lovelace pedigrees requires re-examination.

The scope of this paper is intended to include all patents for land within the limits of late Village of New Brighton and the northern part of the late Village of Edgewater.

Papers published in Volume VI. of the Proceedings of the Natural Science Association of Staten Island, pages 28 and 31, show the grants of land upon Staten Island made by Colonel Richard Nicolls, the first English governor of the Province of New York.

Nicolls was succeeded by Col. Francis Lovelace in 1668. (2 *Bryant*, 336; 2 *Mem. Hist. C. N. Y.* 336; *post p. 58.*) On August 28th of that year the latter wrote to Lord Arlington that he was now " * * * invested with the charge of His Royall Highnes territorys, being the middle portion of the two distinct factions, the Papist and the Puritane." (3 *Col. Doc.* 174.)

For the importance and general bearing of this allusion, the reader is referred to the introduction to Macaulay's History of England.

On April 13, 1670, certain Indians joined in a deed conveying Staten Island to Governor Francis Lovelace. (1 *Land Papers* 34; 13 *Col. Doc.* 455.) The Island had been previously conveyed by the Indians to Lubbertus van Dincklage, attorney for his Noble Honor Hendrick

van der Capellen tho Ryssel, (14 *Col. Doc.* 393) and it may be that prior grants or concessions had been made by the Indians to Cornelis Melyn, (See 1 *Col. Doc.* 144, 348) to David Pietersen de Vries (See *post p. 50*) and to Michael Pauw. (See 13 *Col. Doc.* 2.) The Indian inhabitants of Staten Island are said to have disappeared prior to 1675. (14 *Col. Doc.* 706.)

Governor Lovelace on July 22nd, 1672, directed Mr. Andrew Norwood, Capt. Dudley Lovelace and Mr. Robert Ryder to take a survey of Staten Island, with its dimensions and circumferences, to lay the same down upon a plat and make return thereof to him. (13 *Col. Doc.* 466; *see id.* 518.)

On the 5th of the following September there was filed a description in Dutch of a survey of Andrew Norwood's land, containing 150 acres. (1 *L. P.* 47.) This was followed by a patent (3 *Patents* 113; *post p. 60*) wherein the land granted is described as bounded on the north side upon land of Capt. Dudley Lovelace, near the Watering Place. (14 *Col. Doc.* 506.) The grant to Capt. Dudley Lovelace is again referred to in 4 *Patents* 109.

A Dutch fleet entered New York Bay on July 27th, 1673, (2 *Brod.* 206) and the ships companys breakfasted on Governor Lovelace's sheep and cattle on Staten Island, as he wrote to Governor Winthrop of Connecticut. (3 *Col. Doc.* 198.) New York was surrendered. (2 *Bryant* 347.) For a full documentary history of the second Dutch administration, see "Minutes of the Administration of Commanders Evertsen and Benckes, and of Anthony Colve, Governor of New Netherland, 1673, 1674. (2 *Col. Doc.* 569 *et seq.*)

Colonel Francis Lovelace, the late Governor, was arrested for debt and his property was confiscated. (2 *Bryant* 350;

3 *Narrative and Critical History of America*, 395; 2 *Brod.* 214; 2 *Col. Doc.* 611; 3 *Col. Doc.* 205.)

At a meeting of the Commanders and Honorable Council of War of New Netherland, held in Fort William Hendrick, August 21st, 1673, "James Grover, making known that he hath in hands on Staten Island a Water Mill belonging to Mr. Lovelace, on which work he has, he says, received 10 pounds sterling, requests order what further is to be done. Whereupon he is allowed to proceed with the work according to the contract." (2 *Col. Doc.* 580).

On October 11th, 1673, Colonel Francis Lovelace was ordered to depart forthwith out of New Netherland; he sailed on Commander Bencke's ship (2 *Col. Doc.* 603; *see id.* 579) and on March 2nd and 9th, 1675, was examined before a committee, appointed by the King to inquire into the surrender of New York. (*Post*, p. 59).

Commissioners had been appointed by the Dutch Council to administer upon Lovelace's confiscated estate (2 *Col. Doc.* 587, 651, 667, 672, 720), and Mr. Cornelis van Ruyven, the receiver, charged himself on June 15th, 1674, with a balance of fl. 41, 618.9. (2 *Col. Doc.* 721). This account passed into the control of the succeeding English administrations and does not seem to have been closed until January 21st, 1679, prior to which time Colonel Francis Lovelace had died. (*XXVIII Colonial Manuscripts*, 50. *State Library, Albany*). Had he been privileged to conduct his own affairs for a time longer, he might not have been found in debt to the Duke of York or to any other person.

Dudley Lovelace was sent to Europe (2 *Brod.* 213), and Thomas Lovelace was ordered to leave the province, but succeeded in delaying the execution of the order until the peace between England and

Holland left him free to remain in the land of his adoption, as appears from the following extract from the minutes of the Dutch Council:

"At a Council, Thursday, the first of March A^o 1674.

"Present

"Governor-General Anthony Colve

"Counciller Cornelis Steenwick

"Mr. Cornelis Van Ruyven and

"Secretary Nicolaes Bayard.

"* * * * *

"On the petition laid before the Council on behalf of Thomas Lovelace, it is, after question was put, ordered as follows:

"The time fixed for the petitioner's departure from the Province within 6 months, is further extended for the space of three months; but since the requested Bouery is already leased, he must provide himself with another residence; in regard to the requested piece of land, if it be surveyed, he shall procure the Surveyors notes of the survey and lodge the same in the Secretaries office; furthermore, the Petitioner is allowed to dispose, at his pleasure, of the goods belonging to him personally; respecting the carpentry work applied for, Petitioner is referred to Schout Billjouw, to prove to him that the same was paid by the Petitioner, when he shall obtain satisfaction therefor if any of said carpentry work be judged suitable for raising a new house on the plantation, or else he may remove the same; furthermore the two requested horses are allowed and granted to the Petitioner and the Schout is required to let him have them; finally, the Petitioner's last request about the cows will be taken into further consideration.

"* * * * *

(2 *Col. Doc.* 692, 694).

Was the "requested Bouery" the bowery of de Vries referred to in the following Dutch grant, and did it include the Glebe?

GRANT OF STATEN ISLAND TO CORNELIS MELYN.

"We, *William Kieft*, Director-General, "and the Council of New Netherland, etc., "etc.

"Make known, that this day, date as below, we have conceded and granted, as we herewith concede and grant (under "authority of an edict, issued by the "Honble Lords Directors on the — day "of July 1640) to *Cornelis Melyn* the "whole of *Staten Island*, situate in the "Bay of the North River of New-Netherland, except as much land as is necessary for a bouery, which had been "granted by us, the Director-General and "Council before the publication of the "above said edict, to *David Pietersen de Vries* from *Hoorn*, and of which land "*David Pietersen de Vries* has already "taken possession; with the express condition, that he, *Cornelis Melyn*, or his "successors shall acknowledge the Honble "Lords-Directors as his supreme authority "under the sovereignty of Their High: "Might: the States-General and obey here "their Director-General and Council, as "good inhabitants are bound to do; provided that he, *Melyn*, or his successors "submit to and acknowledge in every respect all such burdens and taxes, as have "been already or may hereafter be imposed "by the Lords-Directors according to the "Exemptions of *New-Netherland*. We constitute therefore the aforesaid *Cornelis Melyn* in the place and power, that we "had before over the land, giving him actual and real possession of it and full "power, authority and special permission "to enter upon, cultivate, inhabit and use "the aforesaid *Staten-Island*, as he would "do with his other inherited lands and

"effects, without reserving or retaining for "us any claim or pretension thereon." (No date. 13 Col. Doc. 6).

"Tradition says that one of the first dwellings on the Island was situated on the heights at New Brighton, and was constructed of bricks imported from Holland, and occupied, for a time, by a prominent official of the government. If there is any truth in the tradition, the house was probably the residence of de Vries * * * (Clute's *Annals of Staten Island*, 31).

Thomas Lovelace had occupied the land lying at the Northeast point of Staten Island since about 1669. (3 L. P. 69; *post*, p. 75).

The location of the requested piece of land, the surveyor's notes of the survey of which Thomas Lovelace was directed to procure and lodge in the Secretary's office, is fixed by the following entry:

"At a Council, 18th April, 1674.

"Present

"Governor-General Anthony Colve,
"Councillor Cornelis Steenwick,
"Mr. Cornelis Van Ruyven and
"Secretary Bayard, assumed Coun-
"cillors and Fiscal Willem Knyff.

"* * * * *

"Read and considered the petitions of "Jacob Melyn and Jacob Kip, as guardians "of the widow of the late Cornelis Melyn, "requesting that they may be allowed "and granted possession (in consideration "of the lands which said Cornelis Melyn "reserved to himself when he sold Staten "Island to the West India company) of a "certain piece of land situate between the "mill-kill and Schutters Island, and that "Thomas Lovelace may be refused said "land which they understand he is applying for.

"Ordered:

"Petitioners shall within 14 days from this date show what right they have to any lands on Staten Island, or to the land allowed to Thomas Lovelace.

"* * * * *

(2 Col. Doc. 706).

II.

The increasing bitterness of the politico-religious struggle in the mother country led indirectly to the Peace of Westminster, which terminated Dutch sovereignty in New Netherland. (2 Bryant, 353.) In June, 1674, Charles II granted a new patent to the Duke of York (*Leaming and Spicer's New Jersey Grants*, 41), who issued a commission to Major Edmund Andros as Governor to the Province of New York. (3 Col. Doc. 215). Possession of New Netherland was surrendered to the latter by Governor Colve on November 10th, 1674. (2 Bryant, 354; 3 *Documentary History of the State of New York*, 45 et seq.)

Governor Andros was the bearer of a warrant for the sequestration of Colonel Francis Lovelace's estate, (3 Col. Doc. 226) and on November 12th, 1674, he issued a warrant of attachment thereunder, directed to Thomas Walton, constable upon Staten Island. (13 Col. Doc. 481; *post*, pp. 61, 62; see *Bogardus v. Trinity Church* 4 Paige 178, 15 Wend. 111; 4 *Sandford's Chancery Reports* 369, 633).

At a meeting of the Council held on August 5, 1675, it was ordered that all persons who had warrants for land upon Staten Island should within six weeks apply to the surveyor to have their lands laid out. (13 Col. Doc. 485.)

Governor Andros executed a patent bearing date June 3rd, 1676, reciting that the estate of Col. Francis Lovelace had been "legally Attached and Apprized for Debt to his Royall Highnesse," and granting to John Palmer about eighty acres

of land and the uncompleted mill thereon, so attached. (4 Pat. 110; *post*, p. 62).

A partly illegible foot note in the record seems to indicate that this patent was called in and another issued in its place. A second patent was executed bearing date the same day and granting to John Palmer land adjoining that above mentioned, and "lying between the two runs at the Mill Creeke beginning with a narrow point and running up wider into the Island. Containing the quantity of 342 acres." (4 Pat. 113; *post*, p. 63). This would seem to indicate the point of confluence of Clove Brook and Palmer Run.

John Palmer's name appears as sheriff of Richmond County in 1683; (*Civil List* 463) as judge of the court of admiralty in 1684; (*id.* 276) and as a member of the Council in 1684-5 and 1687-8; (*id.* 312; 3 Col. Doc. 543) he seems to have been the confidential agent of Governor Dongan (3 Col. Doc. 387, 402, 413, 414, 416, 417, 420, 421, 428, 429, 475, 478) and to have suffered serious losses during the Leisler administration. (3 Col. Doc. 610, 662.)

A patent was executed bearing date September 29th, 1676, granting to Andrew Norwood 372 acres of land upon Staten Island, including that formerly granted to him by Governor Lovelace, and the 150 acres formerly occupied by Captain Dudley Lovelace. (4 Pat. 109; *post*, p. 60).

Plate II shows a surveyor's rough draft of the 372 acres so granted. Whether Boyd Hill, the school house knoll, Corsen's Brook Valley and the bluff below St. Mary's Church be thereon indicated are questions upon which surveyors might be heard with profit.

The Duke of York sent to Governor Andros a letter bearing date May 7th, 1677, granting the latter's request to visit England. (3 Col. Doc. 246.)

September 29th, 1677, marks an epoch in the history of the North Shore of Staten Island, and it appears in a large number of patents granting lands in Richmond County. By one of these, there was granted to Andrew Norwood land lying to the north of his plantation and bounded "north by land formerly of Collonel ffrancis Lovelace west by ye Hills." (4 *Pat.* 141; *post p.* 61). By three other patents lands lying along the Kill van Kull were granted to Gerritt Croosen, (4 *Pat.* 137; *post p.* 68) Peter Jansen (4 *Pat.* 138; *post p.* 69) and Claus Arentse. (4 *Pat.* 113; *post p.* 69.) Two patents are said to have been executed on this day to John Palmer and one to Francis Barbor, but no record of them appears beyond a recital in a subsequent confirmatory patent to John Palmer. (5 *Pat.* 141; *post p.* 64).

Claes Arentse, from Drenthe, with his wife, three children and a boy; Peter Jansen, shoemaker, from the same province, with his wife and four children and Couraet Croos, a Swiss soldier, had come to New Netherland aboard of the Spotted Cow in April, 1660. (3 *Doc. Hist.* 36, 37). The same vessel in April, 1663, brought over Lammert Jansen Dorlant and Jan Otto van Teyl. (3 *Doc. Hist.* 40, 41). A Claes Arentse was appointed Schout of Bergen in 1673. (2 *Col. Doc.* 578). Claes Arentse, Peter Jansen and Lambert Jansen Dorland seemed to have settled in Breuckelen, as their names appear upon the assessment roll made up there in September, 1676. (2 *Doc. Hist.* 273, 275). There is, however, some doubt whether the Peter Jansen who came over on the Spotted Cow was the same person who appears as grantee in Liber 4 of Patents at 138. (14 *Col. Doc.* 57.)

"November ye 16th the Governor parted from New York and went to take his leave

of Governor Carterett in New Jersey and lay there all night; the 17th went aboard near Staten Island, weyed and went down ye Bay neare Sandy Point whence he sayled." (3 *Col. Doc.* 257). Anthony Brockholst remained as Commander in Chief of the province. (*Civil List*, 163).

For the Governor's proceedings in England see 3 *Col. Doc.* 254, 257 *et seq.* During his stay he was knighted (3 *Narrative and Critical History of America* 401) and received a commission authorizing him to appoint a judge of the court of admiralty for the Province of New York. (3 *Col. Doc.* 268). He resumed his government in New York on August 7th, 1678.

The accounts rendered by Governor Andros in England, which brought in the Duke of York a debtor to the amount of some £1100 sterling, (3 *Col. Doc.* 267) seem to have aroused the latter's curiosity as to the condition of his provincial finances. The malice of the Billops and the activity of the friends of Governor Carteret may have had their influence upon further investigations. (3 *Col. Doc.* 221, 239, 276; 3 *N. & C. Hist. Am.* 434).

Mr. Lewin received a commission as the Duke of York's agent at New York and Albany to inquire and find out all the estate, rents, revenues, profits and perquisites belonging and appertaining to him in these places. (3 *Col. Doc.* 279). Governor Andros was ordered to return to England, and to commit the care of his government to Lieutenant Brockholst during his absence. (3 *Col. Doc.* 283). The latter was a Catholic. (3 *Col. Doc.* 657).

Mr. Lewin arrived in New York on October 16th, 1680, and proceeded with his investigation. (3 *Col. Doc.* 302). This seems to have had the effect of spurring on Governor Andros to further grants of

the Lovelace land, applications for which had been received from actual settlers who had begun to make improvements. (13 *Col. Doc.* 546).

The following grants were made during the month of December, 1680, immediately prior to the Governor's departure for England.

By patent dated December 1st, there was granted to Philip Welles 360 acres of land lying along the Kill van Kull to the east of the land of Claes Arentse. (5 *Pat.* 4.) This land is described as "joyning to the northwest side of ye Farme of Coll. Francis Lovelace beginning at a White Oak Tree by the Water side." The survey for this grant was made by Robert Ryder (1 *L. P.* 171) and on December 29th, there was filed a description of a survey of 357 acres of land lying at the head of the Fresh Kill, laid out for Robert Ryder by Philip Welles. (1 *L. P.* 211; see 1 *L. P.* 69, 70.)

By patent dated December 2nd, there was granted to Lambert Jansen Durland 130 acres of land "scituate lying and being on the northeast side of Staten against Constables Hook with a Certaine Messuage Tennement or dwelling House and Fences thereupon being p'te of ye Farme or Plantacôn formly belonging to Coll. Francis Lovelace Esqr late Governor here and surveyed and laid out for Lambert Jansen Durland beginning at a White Oak Tree by the Waterside on ye east side of Philip Wells land." (1 *L. P.* 176; 5 *Pat.* 2; *post*, p. 73.) Durland was a Protestant, (4 *Col. Doc.* 933, 942) and served as representative in the general assembly of 1691. (*Civil List*, 348.)

Was the first patent to John Palmer called in because the Governor thought it expedient to withdraw the admission that the uncompleted mill had stood upon land which had belonged to Governor Lovelace? The patents to Gerritt Croosen (4

Pat. 137; *post*, p. 68) to Welles and to Durland seem to disclose a desire to limit so far as might be, any admission of Governor Lovelace's ownership.

By patent dated December 15th, there was granted to Jacob Cornelise 90 acres of land in the rear of the land of Garret Cruse; (1 *L. P.* 173; 5 *Pat.* 12) to James Gyles 90 acres in the rear of the land of Peter Jansen; (1 *L. P.* 173; 5 *Pat.* 11) to Peter Jansen 80 acres in the rear of his front lot; (*L. P.* 195; 5 *Pat.* 23) and to John Vincent, a New York cooper (*E* 140), 80 acres in the rear of the land of Claes Arentse (Vight.) (1 *L. P.* 196; 5 *Pat.* 27; *post*, pp. 69, 70. See Plate III.)

On December 30th, John Tailor, sergeant, (5 *Pat.* 19) John Fitzgarrett (5 *Pat.* 20) and David Thomas (5 *Pat.* 21, *post*, pp. 70, 71) each received a grant of 88 acres of upland and meadow. The upland lay upon the great plain, and Mrs. J. Bleecker Miller, an authority upon the subject of British land grants in Richmond County, has pointed out that the southwest corner of the former Village of New Brighton extended partly over these three grants, which are frequently referred to as the "Soldiers Lots." (See *Liber of Deeds*, pp. 71, 76.) Whether they were granted to the non-commissioned officers and men of the "company of foot" which Governor Andros brought with him to the province (3 *Col. Doc.* 220) or were allotted to militiamen, (See 13 *Col. Doc.* 449) or otherwise, is a question for subsequent investigation.

Sir Edmund Andros left New York on the 7th and sailed from Sandy Hook on the 11th day of January, 1681. (3 *Col. Doc.* 286.)

Mr. Lewin's report and the answer of Governor Andros contain brief references to Staten Island. The Commissioners of The Duke of York's Revenue reported on

Mr. Lewin's charges and exonerated the Governor, (3 *Col. Doc.* 302, 308, 314), but on September 30th, 1682, a commission was issued to Colonel Thomas Dongan as governor of the Province of New York. (3 *Col. Doc.* 328, 330.) Dongan was a Catholic. (3 *N. & C. Hist. Am.* 403.)

III.

Governor Dongan arrived in New York on August 27th, 1683, (3 *Bryant* 7), and thereafter appointed John Palmer sheriff of Richmond County (*C. L.* 463) and Philip Welles surveyor general. (*C. L.* 175.) The latter, on February 23rd, 1684, was ordered to lay out lands on Staten Island according to each owners patent, (2 *Brod.* 410) and was appointed Connecticut Boundary Commissioner in the same year. (*C. L.* 235; see 4 *Col. Doc.* 628.)

John Palmer had acquired the lands granted to Barbor, Cornilise and Gyles, when, on March 29th, 1684, there was filed a "Description of a survey of 4500 acres of land 'situated in the middle or body of Staten Island' laid out for John Palmer by Philip Welles, surveyor." (2 *L. P.* 33; *post* p. 63.) A patent granting and confirming to John Palmer the lands so surveyed bears date the 2nd day of May, 1684, (5 *Pat.* 141; *post*, p. 63) and on the 27th day of the same month he was appointed by the governor judge of the court of admiralty. (*C. L.* 276.) Thomas Lovelace was appointed sheriff of the County of Richmond on the first day of the following November and served for one year; (*C. L.* 463) he was directed to summon the persons not having land titles before the governor and council. (2 *Brod.* 411.)

Charles II died on February 6th, 1685, and the Duke of York ascended the throne as James II. (10 *Lingard's His-*

tory of England, Lond., 1883, 110; 1 *Macaulay Ch. IV*; 3 *N. & C. Hist. Am.* 406; 2 *Bryant* 387; 3 *Col. Doc.* 359.)

The King sent a letter to Governor Dongan directing that the customary proclamation be made, (3 *Col. Doc.* 360) which order was executed on April 23rd. (*V Council Minutes* 109; *State Library, Albany.*)

A patent was executed bearing date March 17th, 1685, purporting to recite the description contained in the prior patent of December 1st, 1680, and granting and confirming to Philip Welles the land so recited, together with fifty-six acres in addition; but as the patent of 1680 gave the breadth of the land granted as one hundred and ninety-two rods, and the patent of 1685 recites this as fifty-five and a half chains, mistake or fraud is obvious. The grant of the additional fifty-six acres may have been intended to cover encroachments. (See 2 *L. P.* 213; 5 *L. P.* 101; *post*. p. 73.) It was not until February 10th, 1686, that there was filed a description of the survey of the land granted to Welles by the patent of 1685, and this survey was made by Philip Welles himself. (2 *L. P.* 148; *post* p. 72.)

In May the governor's salary was raised from £400 to £600; he received a new commission and fresh instructions and sent home a detailed report of the state of the province. (3 *Col. Doc.* 369, 377, 382, 389.)

A commission had been issued constituting Sir Edmund Andros Governor of New England, and he arrived in Boston in December, 1686. (2 *Bryant* 387.)

On January 17, 1687, there was filed a description of a survey of 5100 acres of land, lying upon Staten Island, on the Kill van Kull, together with the great Island of salt meadow near the Fresh Kill, and opposite to Long Neck, laid out

for John Palmer by Philip Welles, surveyor. (2 *L. P.* 208; *post*, p. 65.) This was followed by the filing on the 5th day of March succeeding, of a survey of 340 acres of land, lying upon the east end of Staten Island, bounded on the north by the Kill van Kull, and known by the name of Loulace's Farme, laid out for Capt. Thomas Loulace, by Philip Welles, surveyor. (2 *L. P.* 213; *post*, p. 74. See Plate IV.) Whether Vanderbilt Brook, Arietta Street Brook, Duck Pond, Jersey Street Brook and a part of Soria Brook be thereon indicated, are questions for the surveyors to consider.

As Lovelace never received a patent for the land so laid out, and as it was more than twenty-one years afterward that his niece and her husband succeeding in obtaining a grant, it is a fair assumption that the latter survey was made in the interest of Philip Welles, John Palmer and Governor Dongan. There is no recognition of any right in Thomas Lovelace in the grants to Welles, Dorland or Palmer. Whatever rights Lovelace had were probably only possessory and not likely to have ripened into a legal title by lapse of time. *Nullum tempus occurrit Regi*. The Lovelace family was in disfavor at court, and so continued throughout the reign of James II, for John, Lord Lovelace, had been arrested in 1683 on account of the Rye House plot, and in March, 1688, was summoned before the privy council for telling some constables that they need not obey a Roman Catholic justice of the peace. (34 *Dict. Natl. Biog.* 166.) The Protestant Lovelace probably had few rights which the Catholic Dongan felt bound to respect.

The final patent to John Palmer bears date March 31st, 1687. (6 *Pat.* 198; *post*, p. 65.) It not only confirmed all the prior grants of land to him, but granted some six hundred acres in addi-

tion and erected the whole territory into The Lordshipp and Mannor of Cassil-towne, with appurtenant manorial rights and privileges including the right to maintain courts baron and courts leet, all of which John Palmer and Sarah his wife conveyed to Thomas Dongan by deed dated April 16, 1687. (*Liber B, of Conveyances*, page 80, *Richmond County Clerks office*.)

Late that summer or early in the fall Judge Palmer was sent as a special messenger to the King by Governor Dongan, who seems to have desired to maintain over Palmer that control of living which so frequently implies control of action. (3 *Col. Doc.* foot of p. 430.)

Again trouble arose over the revenues and accounts. The governor accused Mr. Santen and the latter accused the former. (3 *Col. Doc.* 492, 493.) Dongan was recalled (*id.*) and Matthew Plowman received a commission as collector and receiver of revenues for the Province of New York in place of Mr. Santen. (3 *Col. Doc.* 501.)

IV.

The commission of Sir Edmund Andros as Governor of New England, in April, 1688, was enlarged so as to include New York and the East and West Jerseys. (3 *Col. Doc.* 537.) A commission was issued to Captain Francis Nicholson as Lieutenant Governor. (3 *Col. Doc.* 536, 537.) Under the order of the King, Dongan resigned his government to Andros on August 11th, and the latter returned to Boston leaving Nicholson in command at New York. (3 *N. & C. Hist. Am.* 409; 3 *Col. Doc.* 550, 566.)

William of Orange landed in England only about a month after Andros returned to Boston. In another month James II had fled to France, and in February, 1689, William and Mary were proclaimed in London King and Queen of England.

(2 *Macaulay Ch. X*; 3 *Bryant*, 12; 3 *Col. Doc.* 572.)

Andros was made prisoner in Boston. (3 *Col. Doc.* 578.) The government of New York had been left in the hands of Lieutenant Governor Nicholson and of Frederick Philipse, Stephen van Cortlandt and Nicholas Bayard, members of the Council.

It was suspected that Nicholson was under Jesuit influences. The people distrusted the Protestant members of the Council who had been recipients of Catholic favors. The time was ripe for Jacob Leisler, a German emigrant from Frankfurt, a leader of the people, or, as they were termed by the Council, "the rabble," to seize the reins of government. Lieutenant-Governor Captain Nicholson departed for England "to render an account of the deplorable state of affairs" in New York. (3 *Col. Doc.* 585.) Former Governor Dongan prepared to depart from the province, four great guns having been discovered in his mill on Staten Island. (*Clute's Annals of S. I.* 63; 2 *Doc. Hist.* 3, 5.) The events of Leisler's administration may be found very fully set out in 2 *Doc. Hist.* 1 *et seq.* and in 3 *Col. Doc.* 583 *et seq.* (See 1 *William Smith's History of The Province of New York* 93. William and Mary were proclaimed by Leisler on June 22nd, 1689. (3 *Bryant* 15.)

It was probably during this eventful year that Thomas Lovelace died. Having no children, he had sent to Barbados for his niece Mary and her husband Ellis Duxbury, but died before they arrived in New York. His widow hearing of their arrival, sent for them, and, telling them that it was her husband's desire, delivered to them possession of his farm on Staten Island, reserving for herself maintenance for life. (3 *L. P.* 69; *post*, p. 75.)

In November William and Mary granted

a commission to Colonel Henry Sloughter as governor of the Province of New York. (3 *Col. Doc.* 623, 629.) He did not sail from England until December 1, 1690, and then went by way of Bermuda. Richard Ingoldsby, as captain of a company of grenadiers, sailed at the same time, arrived in New York on January 20th, 1691, and at once attacked the fort, which Leisler refused to deliver up except upon the order of Sloughter. (3 *Bryant* 21.)

Sloughter arrived on March 19th, 1691, and demanded possession of the fort. A slight delay on Leisler's part for the purpose of establishing Sloughter's identity, was made the pretext for his arrest on a charge of treason, under which he was tried, convicted and executed. By act of attainder his family was deprived of his estate, but the attainder was reversed by act of Parliament in 1695. (2 *Doc. Hist.* 249, 250. See 4 *Col. Doc.* 320, 325.)

Duxbury had presented a petition to Major Ingoldsby for a grant of the Lovelace farm on Staten Island, and a patent was executed bearing date March 19, 1691, the day of Sloughter's arrival. This patent recites the seizen and possession by Thomas Lovelace of Lovelace's farm on Staten Island; the marriage of Ellis Duxbury with Mary the niece of Thomas Lovelace; that said Mary was the nearest heir in the Province of New York to said Thomas Lovelace; the death of Thomas Lovelace and the presentation of the petition to Major Ingoldsby; and grants the farm prayed for with the following proviso:

"Always provided that anything herein contained shall not be taken or construed to Barr or Deprive any nearer Heir or Heirs of him the said Thomas Lovelace, Deceased, of his or their rights to the farm or plantation aforesaid if any such Heir be." (6 *Pat.* 374; *post*, p. 74.)

The proviso nullified the grant in so far as the marketability of the title was concerned, and it is difficult to see what useful purpose the patent subserved, except possibly the recognition of Ingoldsby as Commander in Chief. Duxbury seems to have stood well with the new authorities, for he was appointed judge of the court of common pleas of Richmond County and served until 1710. (*C. L.* 437.) He represented Richmond County in the first and fifth general assemblies. (*C. L.* 348.)

It will be noticed that this grant is in the name of the sovereigns, a form adopted by Slougher and subsequently adhered to. (5 *Col. Doc.* at p. 369.)

Governor Slougher died on July 23rd, 1691. (2 *Doc. Hist.* 219; see 3 *Col. Doc.* 794, 4 *Col. Doc.* 1152.) He was succeeded by Benjamin Fletcher, whose administration was marked by grave scandals, which led to his recall. (3 *Col. Doc.* 818, 827.) The Earl of Bellomont, appointed in his place, (4 *Col. Doc.* 266) reached New York on April 2nd, 1698, and died there on March 5th, 1701. (4 *Col. Doc.* 302, 857.) Edward Hyde, Lord Viscount Cornbury, received a commission as Governor of the Province of New York. (4 *Col. Doc.* 883.)

Queen Mary had died December 28th, 1694, O. S., and King William departed this life on March 8th, 1702. (15 *En. Brit.* 594; 24 *id.* 580.) Queen Anne ascended the throne (2 *En. Brit.* 62) and

was proclaimed in New York on June 18th, 1702. (4 *Col. Doc.* 960.)

V.

Ellis Duxbury now petitioned anew for a patent (3 *L. P.* 69) but obtained only a survey. (*id. post*, p. 75.) After waiting six years, he presented another petition and this time received an unconditional grant. (7 *Pat.* 385; *post*, p. 76.) It will be noticed that one of the grantees in this patent is referred to as "our Loving Subject Ellias Duxbury" and Duxbury's name appears as Elias in the assembly records. (*C. L.* 348.) Ellis was a common corruption of Elias. (*Bardsley's "Our English Surnames,"* 54.)

But Duxbury's troubles were not ended. The encroachment by Philip Welles on Dorland's west boundary caused the latter to encroach upon Duxbury's land. The surveyor general made a resurvey and rendered a report in Duxbury's favor. (5 *L. P.* 101; *post*, p. 73. See Plate V.) Apparently the encroaching lines were never rectified, as is witnessed by the metes and bounds of the Van Buskirk farm. (*Beer's Atlas of Staten Island*, 1874, *Plates 4 and 8.*)

Ellis Duxbury died in 1718, leaving a last will and testament by which he devised his plantation on Staten Island to The Minister Church Wardens and Vestry of Saint Andrew in the County of Richmond. (*Post*, p. 77.)

THE END

APPENDIX.

PART I.

LOVELACE PEDIGREES.

A.

John Lovelace

(died 1558) of the Manor of Hurley in Berkshire.

**Richard Lovelace
of Hurley.**

Sir Richard Lovelace,	}	= 1st Catherine Hill
Lord Lovelace, Baron of Hurley.		= 2nd Margaret Dodsworth

John Lovelace
(2nd Lord Lovelace)

FRANCIS LOVELACE.

Elizabeth

Martha

John, (3rd Lord Lovelace)

William = da. of Wm. King

John, died in infancy.

John (4th Lord Lovelace)

died in New York, 6 May, 1709.

(Compiled from 3 Banks Dormant and Extinct Baronage 497 and Burkes Dormant and Extinct Peerages 334.)

The manuscripts of the House of Lords,
1661. June 5, Petition of Francis Lovelace Esq^{re} second son to Richard Lord Lovelace, Baron of Hurley, deceased. Petitioner being inveigled to marry without the privy of his relatives, and much below his quality and condition was afterwards, by the like circumvention and cozenage, induced to settle his whole estate upon trust to the separate use of his wife. A short time afterwards he was and still is unjustly excluded from enjoying the estate so settled, and also from cohabitation with his wife. There being no judicature now in being by which such misdemeanors and practices can be punished and redressed, petitioner appeals to their Lordships, and prays that Ann King, Ann Lovelace, and others be sent for, and a day appointed for hearing his complaint. (*See L. J. XI. 285.*)

Annexed:—I. Statement of petitioners grievances.

Historical Manuscripts Commission, 7th Report, Appendix p. 144.

Manuscripts of S. H. Le Fleming Esq^{re} of Rydal Hall.

(850. April 16, 1667. Newsletter, 12th.

" * * * Colonel Lovelace, brother of Lord Lovelace, is to succeed Colonel Nicholas in the government of New York."

Hist. Mss. Com. 12th Rep. App. VII. 47.

(1595.) March 2, 167 4-5. Newsletter 26th.

" * * * The King has apointed a committee consisting of the Duke of Monmouth and others to inquire into the surrender of New York. They this morning examined Col. Lovelace the governor, who gave them the reasons of his absence at the time of the surrender. They were not satisfied and have adjourned till Thursday. * * *

(1599.) March 9, 167 4-5. Newsletter, 5th.

"* * * Colonel Lovelace was examined again to-day at the Cockpit. A report is to be drawn up."

Hist. Mss. Com 12th Rep. App. VII. 117.
34 *Dict. Natl. Biog.* 165.

B.

Richard Lovelace
of Queenhithe, London, temp. Henry VI. purchased Bayford.

Launcelot

William

William

William

Sir William

Elizabeth

Richard

Thomas

Sir William = Ann. da. of

Sir William Barnes of Woolwich, Kent.

Sir Richard, of Woolwich, Col. Francis. William. Capt. Dudley = Mary Lovelace.
Kent, afterwards of Love- A daughter buried in St.
lace Place, Bethersden, Margarets, Canterbury.
died 1658, buried in
St. Brides Church, London.
Margaret, only daughter
and heir, married Henry,
5th son of Lord Chief Justice
Coke, ancestor of the late
Earl of Leicester.

Compiled from Berrys County Genealogies, Kent, pp. 474, 475.

PART II.
NORWOOD GRANTS.

1672 Sept. 5. Description of a survey of Andrew Norwoods land on Staten Island, containing 150 acres.

1 *Land Papers*, 47.

Francis Lovelace Esqre Governor &c	Patent. Dated 19 September 1672. Recorded 3 Patents 113.
to	Consideration, quit rent of £0. 12. 6. being at the rate
Mr. Andrew Norwood.	of one penny per acre.

Grants all that tract of land upon Staten Island bounded on the north side upon land of Capt. Dudley Lovelace, near the watering place; on east side along the shoare extending from the said land where now there is an oaken tree marked with an X 174 English poles to another oaken tree at the corner of a sandy bay marked with a cross and from thence extending west south west into the woods parallel to the Governors land so far as to contain 150 acres, with fitting meadow.

Edmund Andros Esqre &c	Patent. Dated 29 September 1676. Recorded 4 Pat. 109.
to	Consideration, payment of quit rent of 4 bushels of good winter wheat
Andrew Norwood.	to such officer or officers in authority in N. Y. as shall be empowered to receive the same.

Recites that "Whereas there is a certain piece of land upon Staten Island lying upon the Eastern side thereof being in Length by the water side 82 chains and in breadth forty Including also a certain Valley of Land lying in the reare of the said land being in Length by the side of the Hills forty chaines and at the reare six chaines and Eighteen chaines by the reare of the said Land being bounded to the Northward by the land of Coll. Francis Lovelace, to the East by the water side and to the South and West by the commons Containing three hundred and seventy two acres of land as also twenty five Acres of Meadow Ground adjoining unto the meadow of Capt. Nathaniell Davenport and Company lying to the Southward of the Point of John Tunison's Three hundred Acres of which said land was heretofore granted by Patent from Coll. Francis Lovelace (then Governor) unto Mr. Andrew Norwood and Capt. Dudley Lovelace and a beginning of a settlement made thereupon the remainder being New Land undisposed of All which hath now by Warrant from mee been laid out for Mr. Andrew Norwood as by the returne of the Survey under the hand of the Surveyor doth and may appear. * * *"

Grants the land so recited.

1676, Oct. 5. Description of a survey of 372 acres of land "lying upon y^e easterne side of Staten Island" laid out at y^e request of Andrew Norwood of y^e Island of Barbados, merchant, by Ro:Ryder, deputy surveyor, [with draught.] (See Pl. II.) 1 *Land Papers* 93.

1676, Oct. 7. Description of the meadow land assigned to the foregoing. Ro:Ryder, deputy surveyor. 1 *Land Papers* 94.

Edmund Andros Esq ^{re}	Patent.
to	Dated 29 September 1677.
Andrew Norwood.	Recorded 4 Pat. 141.
	Consideration, quit rent of
	one bushel of good winter wheat
	to be paid in New York, &c.

Grants land to the North of Norwoods plantation "being in length by y^e water side 114 Rodds, ranging West South West up to y^e Hills 35 Rodds. Bounded North by land formerly of Collonel Francis Lovelace West by y^e Hills in all 25 acres."

1677, Oct. 10. Description of a survey of 25 acres of land upon Staten Island, laid out for Andrew Norwood, and lying to the northward of his plantation. Ro:Ryder, surveyor. 1 *Land Papers* 130.

III.

PALMER GRANTS.

Warrant authorizing Governor Andros to seize Colonel Lovelace's Estate.
[New York Entries, CLI. 15.]

Whereas it appears by the accounts of Francis Lovelace Esq^r my late Lt Govern^r of New York, stated and audited by Thomas Delavall Esq^r my late Audit^r there, that there is due unto me from y^e said Francis Lovelace a considerable sum^e of money amounting to y^e sum^e of about seaven thousand pounds; and being informed yt y^e said Francis Lovelace hath some estate in lands and houses by w^{ch} I may in some measure be reimbursed my said debt; These are to will authorize and require you immediately after your arrivall at New Yorke wth out losse of time, fully to informe yourselfe what estate reall or personall y^e said Francis Lovelace hath at that place, which haveing done you are by due course of law to possess yourselfe thereof in my name and to my use, and to receive y^e rents, issues and proffitts thereof until I shalbe satisfyed such sum^e and sum^es of money as shall appear to you to be due and oweing unto me by y^e said Francis Lovelace. And for soe doing this shalbe yo^r Warrt Given under my hand at Windsor y^e 6th day of Augst 1674.

To Major Andros my Lt and
Governor of New York.

(3 *Col. Doc.* 226.)

An Ord^r of Attachment on Governor Lovelaces Estate, on Staten Island.

Whereas I have received particular directions and Order from his Royall Highnesse, to informe myselfe what Estate, reall or personall, there is in these Parts, belonging to Colonell *Francis Lovelace*, late Govern^r here, and to

possesse myselfe of the same, in his Royall Highnesse name and to his use: These are in his Mat^{ties} name to will and require you, forthwith to lay at Attachment upon the Houses and Plantacôn upon *Staten-Island*, lately belonging to Colonell *Francis Lovelace*, as also upon the Water Mill sett up by him, and Lands there unto appertaining, together with the Horses and Cattle which may be found upon the said Island, or any other Goods there, of the said Coll. *Lovelaces*, the which shall bee prosecuted by due course of Law, on behalfe of His Royall Highnesse, against the said Coll. *Lovelace*, for Moneys and Arrearages of Moneys or Goods, due unto his Royall Highnesse; and for so doing, this shall be yor Warrant, Given under my hand and Seale in New York, the 12th day of November, in the 26th yeare of his Mat^{ties} Reigne, Annoque, Domini, 1674. E. ANDROS.

To Mr. *Thomas Walton*, Constable upon *Staten Island*, who is to make returne of his Service of this Attachment, at the next Court of Sessions, to be held at Gravesend. (13 Col. Doc. 481.)

"A Confirmation Granted unto Mr. John Palmer for the Mill and some Land adjacent upon Staten Island.

Edmond Andros Esq^r, &c.

Whereas the Estate of Coll. Francis Lovelace (late Governor here) hath been legally Attached and Apprized for Debt to his Royall Highnesse amongst which Materiall Stones and Appurtenances for a Mill in part built and about Eighty Acres of Land adjoining lying on the North side of Staten Island and being within Constables Hooke was Apprized at ffoure Thousand Guilders Sewant* as by the said Apprisement doth and may appear the said Materialls and Mill not yet finished, spoiling and going to decay And there being none on the said Island, which is very much wanted, therefore on application of Mr. John Palmer for the Generall good of the Inhabitants, the said Mr. John Palmer offering to pay according to the Apprizement By vertue of the Authority derived unto me from his Royall Highnesse I have Given and Graunted And by these presents do Give and Graunt unto the said Mr. John Palmer his Heirs and Assignes the aforesaid Mill and Appurtenances and Land adjacent Containing the Quantity of about Eighty Acres as aforesaid, with Meadow Ground Proporcônable hee finishing building up the said Mill making up the Dam and keeping the same in due repaire for the Publicke use as other Mills are or ought to bee and Improving the Land according to Law To have and to hold the said Mill and Appurtenances Land Meadow Ground and premises unto the said Mr. John Palmer his Heirs and Assignes unto the proper use and behoofe of him the said Mr. John Palmer, his Heirs and Assignes forever Hee Continuing in Obedience and Conforming himself according to the Lawes of this Government and yielding and paying therefore yearly and every yeare unto his Royall Highnesse use as a Quitt Rent foure bushells of good Winter Wheat unto such Person or Persons in Authority there as shall bee Empowered to receive the same. Given under my Hand and Sealed with the Seale of the Province in New York the 3rd day of June in the 28th year of his Mat^{ties} Reigne Annoq Domini 1676.

This Patent alled in & E. ANDROS.
its place.

I do hereby Certify the foregoing to be a true Copy of the Original Record. Word *said* interlined between 12th and 13th lines and the imperfect note at the Bottom representing the said Record which is there defaced. Compared therewith by me

LEWIS A. SCOTT, Secretary.

(4 Pat. 110.)

(Lewis Allaire Scott was Secretary of State from October 23rd, 1789, to March 24th, 1793. *Civil List* 170.)

(*See N. Y. Evening Post, March 17, 1900, p. 13, first and second columns.)

Patent.

Edmund Andros Esq^r &c. Dated 3 June 1776. (So in record.)

to Recorded 4 Pat. 113.

John Palmer. Consideration, quit rent of

16 bushels of good winter wheat &c.

Grants land within Constable Hook on the North side of Staten Island and lying between the two runs at the Mill Creeke beginning with a narrow point and running up wider into the Island. Containing the quantity of 342 acres.

1684, March 29. Description of a survey of 4500 acres of land "situated in the middle or body of Staten Island" laid out for John Palmer by Philip Welles, surveyor.

2 *Land Papers* 33.

Thomas Dongan

Lieut-Governor, and Vice Admirall, &c.

to

John Palmer.

"Confirmacôn,"

Dated 2 May 1684.

Recorded 5 Patents, 141.

Consideration, quit rent of one lamb and 8 bushels of good winter wheate if demanded.

Recites patent of 29 Sept. 1677, granting to John Palmer a parcel of land upon the North side of Staten Island within Constable Hook "lying between the two runs at the Mill Creeke beginning with a narrow Point and running up wider into the Island Containing the Quantity of three hund^d forty two Acres Meadow Ground to be Laid out Proporcônably."

Recites patent of 29 Sept. 1677, granting to John Palmer a parcel of land on Staten Island "beginning att the Pointe of the Mill Creeke soe to goe to a Certaine runn or Creeke to the East thereof forty Chaines or one hund^d and Sixty Rodd and from thence Stretching into the Woods Ninety six Rodd Containing Ninety six Acres together with the Mill and Millstones thereon with Meadow Ground Proporcônable."

Recites that "Whereas the said Sr Edmund Andross Did Give and Graunt unto ffrancis Barbor of the aforesaid Island one Lott of Land on the said Island Bounded on the North with the Land before mencôned belonging to the said Mill on the east with the Land formerly belonging to Garrett Cruse Deceased, on the South with the Land formerly belonging to Jacob Cornelis and on the West with the Land of the said John Palmer Containing Eighty Acres."

Recites patent of 15th December 1680, granting to Jacob Cornelisse "another Parcell of Land on the said Island in the reere of the said Garret Cruse

his land and running Direct South one hund^d thirty-two Rodd to a Runn which Goes to the Mill of the said John Palmer and soe by the said Runn southeast one hund^d twenty eight Rodd and from thence Direct North two hundred and twenty Rodd to the marked Tree of the said Garrett Cruse and from thence West Six Degrees Southerly one hundred and Six Rodd Containing in all ninety Acres of Land there being left eight Rodd in Breadth for highways with eight Acres of Meadow to be Laid out where most Convenient."

Recites patent of 15th December 1680, granting to "James Gyles another Parcell of Land on the said Island in the Reere of Peter Johnson's Land beginning at a Stake by the highway that is left betwixt the said Peter Johnson's and the said Garrett Cruse his Land and Runns in length South two hund^d twenty fouer Rodd to the Runn that Goes to the said John Palmer's Mill and soe by the said Runn fifty fouer Rodd to the Clove Bridge and from thence East six Degrees Northerly twenty Rodd and from thence Direct North two hund^d forty eight Rodd to the Reere of the said Peter Johnsons and by the reare of the said Peter Johnson's West six Degrees Southerly Sixty fouer Rodd to the afore-said highway being in all Ninty Acres of Land with eight Acres of Meadow to be laid out where most Convenient."

Recites that "Whereas the said francis Barbor, Jacob Cornelis and James Gyles Did by a Certaine Writeing or Deed under their Hands and Seales Convey Assigne and make over all their Right Title and Interest to the aforecited Parcells of Land and Meadow unto the said John Palmer his Heires and Assignes forever as by the said Writeings and Deeds may more at Large Appear by Virtue whereof the said John Palmer became and now is in Possession of all and Singular the Premises and hath made Great Improvement^s thereon by Building of Houses, Barnes, Stables, Mills, Dammes, fencing and other Necessarys for Husbandry and Whereas there is another Certaine Tract or Parcell of Land Scituate lyeing and being on the Staten Island Surveyed and laid out for the said John Palmer in the middle or body of the said Island being at the South East Corner of the Land of John Vincent and Runns due East to the Land of Andrew Norwood and soe by the Reere of the said Land to the South West Corner in the Valley neare the South East end of the Clove and from thence upon a Direct Line to the North East Corner of Thomas Stillwells Land thence by his Land and the Land of Wm. Stillwell upon the hills to the North West Corner of Geo. Cumins his Land thence upon a Direct Line to the South East Corner of James Hubbards Land at the head of the fresh Kill and by his land to the reere of the Land of the Inhabitants of Karles Neck and soe by the Reere of the said Karles Neck Lotts to the Greate Swamp including the said Swamp to the Reere of the Soldiers Lotts by the s^d Land and the Land of Cornelis Coursen and Companys after Lotts to the Land of the said John Palmer aforemencōned and by the said Land to the South East Corner of the said John Vincents Land where it first began. Containing with all the Hills Valleys and Fresh Meadows within the above Specified Bounds fouer Thousand five hund^d Acres (allowance being given for Highways) Together with the Greate Island of Meadow lyeing near the fresh Kill as by the Returne of the Surveyor under his Hand bearing date the twenty ninth day of March one thousand six hund^d Eighty fouer Doth and may Appeare."

Grants all the land so recited.

1687. January 17. Description of a survey of 5100 acres of land, lying upon Staten Island, on the Kill van Kull, together with the great Island of salt meadow, near the Fresh kill, and opposite to Long neck, laid out for John Palmer, by Philip Welles, surveyor.

2 Land Papers 208.

"The following Pattent was Recorded for John Palmer Esq^{re} the 30th day of July Ano. Dom. 1687.

Thomas Dongan Capt. Generall Governo^r in Chief and vice Admirall in and over the Province of New York and Territorys depending thereon in America under his most sacred majesty James the Second by the Grace of God of England, Scotland ffrance and Ireland king Defender of the faith &c: To all whom these presents shall come, sendeth Greeting Whereas John Palmer of the City of New York Esq^r as well by vertue of severall deeds & Patents to him or them under whom he claymes made by the former Governo^{rs} of this Province, as by vertue of a Certaine patent or Confirmacōn under my hand and seale of the province Bearing date the second day of may 1684 stands Lawfully and Rightfully seized of & in all that Tract or parcell of Land scittuate Lying and Being on the north side of Statton Island within the County of Richmond Limited & Bounded in manner here after expressed, That is to say, Beginning at a Cove lying on the Sounds, or Kill van Cull at the east bounds of the Land of Garrett Cruise and so running in the woods by the said kill to a marked tree and from thence by a line of marked trees according to the naturall position of the poles south & by east two degrees and thirty minutes southerly according to the compass south there being eight degrees and forty five minutes variation from the northwestward and from thence by reare of the land of Garrett Cruise & Peter Johnsons east and by north two degrees & thirty minutes northerly to the line of peter Johnsons reare lott & by his line south & by east two degrees and thirty minutes south sixty one chaines and then by the reare of the aforesaid lott and the lott of John Vincent northeast & by east one degree northerly to the southeast corner of the land of John Vincent thirty three chaines and a half, from thence by his east line north & by west two degrees and thirty minutes northerly to a white oak tree marked with three notches Bearing northwest from the fresh pond, from thence to a young chestnut tree the southwest corner of the land of Phillip Welles & soe by a line of marked trees east nine degrees & fiveteen minutes southerly by the south side of a small fresh meadow & to the north of the ffresh pond including the pond to the land of Mr. Andrew Norwood and soe by his land as it runs to the wood of the land of Mary Brittain & soe by the reare of the old Towne lotts to the land of Isaac Bellew and Thomas Stillwill & from thence upon the Iron hills to the land of William Stillwell & by his land to the land of George Cuminis & from his northwest Corner to the southeast corner of the land of Mr. James Hubbard at the head of the fresh kills & so Round by his land to the reare of the lotts at Karles neck and so by the lotts to the highway left by Jacob pullion & the great swamp to the land of John ffitz Garrett including the great swamp then

by the soldiers lotts & the reare lotts of Cornelis Corson & Company to the southeast corner of their ffront lotts & soe by the runne which is their bounds to the mill pond including the mill pond to the sounds or Kill van Cull & soe by the sounds to the Cove where first begun. Containeing with all the hills valleys ffresh meadows & swamps within the above specified bounds, five thousand and one hundred acres, be the same more or less. To Hold to the said John palmer his heirs and Assigns forever at & under such quit rents as are reserved payable to his said mag:^{tie} his heirs & successors in and by the said recited patent relacôn to the same being had may more at large appeare. And Whereas, there is a great Island of salt meadow lying neare the ffresh kills over against long neck not yet appropriated to any pticular psôn And Whereas the said John Palmer has made application unto me for a grant of the said Island of salt meadow under the seale of the province and that the before mentioned to have been granted premisses together with the said island may be converted into one lordshipp or mannor Now know ye that for good and lawfull consideracôns me thereunto moving and for the quitt rent hereafter reserved by the said Thomas Dongan by virtue of the power and authority to me derived from his most sacred maj^{tie} & in pursuance of the same Have Given Granted Rattified released and Confirmed & by these presents do give grant Rattify Release & confirm unto the said John Palmer his heirs and assigns all that the aforementioned to have been granted tract of land together with the said Island of salt meadow as also all the messuages tenements buildings fencings orchards gardens pastures meadows marshes woods underwoods trees timbers quarrys rivers rivoletts Brooks ponds lakes streams creeks harbours beaches ffishing Hawking Hunting & ffowling mines mineralls (silver & Gold mines only excepted) mills milldams and all the right members liberties privileges jurisdictions Royalties hereditaments proffits advantages and appurtenances whatsoever to the same belonging or in any wise appertayning or accepted reputed taken known or occupied as part parcell or member thereof. And moreover by virtue of the Commission & authoritie to me the said Thomas Dongan given and the power in me residing & for the reasons & considerations above recited I have & by these presents doe order make & constitute the said tract or tracts of land & premisses with their and every of their appurtenances into one Lordship or mannor to all intents & purposes & the same shall from henceforth be called the Lordshipp & mannor of Cassiltowne & I the said Thomas Dongan have also given & granted & by these present do give & grant unto the said John palmer & his Assigns full power and authority att all times forever hereafter in the said Lordshipp and mannor over Courts Leets & over Courts Barron to hold & keep at such time and times & soe often yearly as they shall see meete & all fines issues amerciaments at the said Courts leet or Courts Barron to be holden within the said Lordshipp & mannor to be sett fforfeited or Imposed & payable or happening at any time to be payable by any the Inhabitants of or within the said Lordshipp or mannor of Cassiltowne or the Limits or bounds thereof & also all & every the powers & authoritys hereinbefore mencôned for the holding and keeping the said Courts leete and Courts Barron from time to time & to award and issue out the Customary writts to be issued and awarded out of

the said courts leete and Courts barron to be kept by the said John palmer his heirs or assigns forever or his or their Stewards deputed and appointed with full & ample power & authority to destrayne for the rents services & other sumēs of money payable by reason of the premises and all other lawfull remedys & meanes for the having possession Receiving Levying and Enjoying the premises & every part and parcell of the same and all wastes strays wrecks Deodands goods of fellons happening & being forfeited within the said Lordshipp & mannor & of all & every sume & sumēs of money to be payd as a post fine upon any fine or fines to be Levied of any lands Tenements or hereditaments within the said Lordshipp or mannor of Cassiltowne, together with the Advowson & Right of patronage & all & every the church & churches erected or to be erected or established in the said manor and lastly I the said Thomas Dongan by virtue of the power & authority aforesaid doe give & grant unto the said John palmer his heirs or assigns that all the Tennants of the said mannor shall & may at all times hereafter meet together & choose assessors within the said mannor according to such Rules ways & methods as are prescribed for Cittys Townes & Counties within this province by the acts of General Assembly for the defraying the publick charge of each respective City, Towne County & all such sumes of money so raised to collect & dispose of for the use aforesaid according as in the said act of General Assembly is established & directed To have & to hold all & singular the said mannor of Cassiltowne and premisses with their and every of their appurtenances unto the said John palmer his heirs & assigns forever to the only proper use benefit & behoof of him the said John palmer his heirs & assigns for ever. To be holden of his most sacred maj^{ty} his heirs & successors in free & common soccage according to the Tenure of East Greenwich in the County of Kent in his majesties Realme of England yielding Rendering & paying therefore yearly & every year for ever unto his most sacred majesty afores^d his heirs or successors or to such officer or officers as from time to time shall be impowered to receive the same if demanded one Lamb & eight bushells of winter wheate on the five and Twentieth day of March at the City of New York in lieu & stead of all services dutys & demands whatsoever. In Testimony of the premisses I have caused these presents to be Recorded in the Secretary's office and the seale of the province to be hereunto affixed the 31st day of March one thousand six hundred eighty-seven & in the third year of his majesties Reigne.

THO DONGAN

Seale.

By Command of his ex^{ty}

J. S. SWINTON.

Att a Council held in New York the 31st day of March 1687 present His Excellency the Govern^r major Anthony Brockholls major ffrederick Phillipps major Stephanus Van Cortlandt Collonell Nicholas Bayard, this pattent was approved of. J. S. Swinton. Council may itt please yo^r Excellency the Attorney Gen^l hath perused this pattent and finds nothing contayned therein prejudicall to his Maj^{ty}s interest.

Examined march 31st 1687.

JA. GRAHAM.

Recorded in the **Secretarys** office for the province of New York in lib. No. 2
 begun 1686.

J. S. SWINTON.

(Liber B of Conveyances page 74 in the office
 of the clerk of the County of Richmond.
 6 Pat. 198.)

John Palmer	Deed.
and Sarah his wife	Dated 16 April 1687.
to	Acknowledged by John Palmer 16 April 1687.
Thomas Dongan.	Recorded Liber B of Conveyances p. 80, 16 April 1687.

Consideration, "A competent sum of Lawfull money of this province to him
 the said John Palmer in hand at and before the ensealing & delivery of these
 presents by the said Thomas Dongan well & truly payd. * * *"

Conveys "All that the Lordshipp mannor of Cassiltowne with the appur-
 tenances scituate on Statton Island in the County of Richmond in the province
 of New York" &c. as set out in the patent.

Witnesses of execution, Phillip Phillips, J. S. Swinton and Geo.

PART IV.

VARIOUS GRANTS BY GOVERNOR ANDROS.

1677, March 16. Description of a survey of a parcel of land on the Kil van
 Kol upon Staten Island, containing 120 acres, together with 12 acres of meadow,
 laid out for Claes Arentse by Ja: Corteljou, surveyor. (In Dutch.)

1 Land Papers 104.

1677, March 16. Description of a survey of a parcel of land on the Kil van
 Kol upon Staten Island, containing 160 acres, together with 12 acres of valley,
 laid out for Peter Jansen Gowanes by Ja: Corteljou, surveyor. (In Dutch.)

1 Land Papers 105.

1677, March 16. Description of a survey of a parcel of land containing 172
 acres, lying on the west (?) side of Staten Island, adjoining the mill land, laid
 out for Gerrit Croose by Ja: Corteljou, surveyor. (In Dutch.)

1 Land Papers 106.

	Patent.
Edmond Andros Esq ^{re} , &c.	Dated 29 September 1677.
to	Recorded 4 Pat. 137.
Gerrit Croosen.	Consideration, quit rent of two bushels of good winter wheat payable in New York &c.

Recites that Whereas there is a certain parcel of land on Staten Island
 lying on the north side thereof, the which hath by order been layd out for
 Garritt Croosen y^e s^d land being bounded on y^e west side with a small run of

water w^{ch} makes ye partition betwixt ye land belonging to ye Mill & ye land layd out for Collon^{ll} Lovelaces Plantac^{on} a line running on either side south and by east it is in breadth one hundred and seventeen English Rodd in length into ye woods two hundred thirty four Rodd. Containing one hundred and sixty acres and one hundred Rodd as also a piece of Meadow Ground lying on ye south west side of John Tunisons Creek, bounded on ye south west side & by ye Meadows by Clause Arents on the north side of Peter Jansen soe round environed by the creeke containing twelve acres as by ye return of ye survey under the hand of ye survey^r doth and may appear."

Conveys land so recited.

Edmund Andross Esq^{re} Patent.
Dated 29 Sept. 1677.
to Recorded 4 Pat. 138.
Consideration, quit rent of
Peter Jansen. 2 bushels of good winter wheat &c.

Grants land bounded on ye east side with ye Creek which divides it from ye land of Clause Arentse, a line running on either side south by east and is in breadth 117 English Rodd in Length into ye Woods 234 Rodd. Containing 160 acres, and a piece of meadow lying on the south west of Jan Tunisons Creek Bounded on ye southwest by meadow of Clause Arentse, on ye northeast by the meadow of Garritt Croosen and so round environed by ye Creek. Containing 12 acres.

Edmund Andros Esq^r Patent.
Dated 29 Sept. 1677.
to Recorded 4 Pat. 139.
Consideration quit rent
Claus Arentse. of 1 bushel & 1 peck of good winter wheat.
in N. Y.

Conveys land on north side of Staten Island Bounded west, by a small creek that runs through the meadows, thence along the Kill van Kull it is in breadth 90 English Rodd in length into ye woods 234 Rodd a line running on ye west side of ye aforesaid small Creek that runs through ye Meadows and on ye east side by a small water. Containing 120 acres and 60 rods. Also meadow lying on ye southwest of ye meadow of Peter Jansen and Garrett Croosen Bounded on the south southeast with ye Island where Daniel Perryn did live and on ye other side invironed by ye Creek. Containing 12 acres.

1680, Nov. 29. Description of a survey of 98 acres of land, lying upon the north side of Staten Island, laid out for Jacob Cornelis, by Philip Welles, surveyor. [with draught.]

1 Land Papers 173.

1680, Nov. 29. Description of a survey of 98 acres of land lying upon the north side of Staten Island, laid out for James Gilles, by Philip Welles, surveyor, [with draught.]

1 Land Papers 173.

Edmund Andros Patent.
Dated 15 December 1680.
to Recorded 5 Pat. 12
Jacob Cornelise. Consideration, quit rent of one
bushel good winter wheat &c.

See 5 Pat. 141. Palmer Grants

Sir Edmund Andros Patent.
to Undated.
James Gyles. Recorded 5 Pat. 11.

See 5 Pat. 141. Palmer Grants.

1680, Dec. 21. Description of a survey of 88 acres of land, lying upon the north side of Staten Island, laid out for Peeter Johnson Gowanes, by Philip Welles, surveyor, [with draught.] 1 *Land Papers* 195.

1680, Dec. 21. Description of a survey of 88 acres of land, lying upon the north side of Staten Island, laid out for John Vincent by Philip Welles, surveyor, [with draught.] 1 *Land Papers* 196.

Patent.

Sir Edmund Andros Dated 30 December 1680.
to Recorded 5 Pat. 23.
Peter Jansen. Consideration, quit rent of one
bushel of winter wheat.

Grants land lying upon the north side of Staten Island and in the reare of a part of Peter Jansens former lot, described as follows: Beginning at the southwest corner of Claes Ariants Ueght and stretching in breadth west 6° southerly 60 rods, from thence by the line of James Giles direct south 244 rods to the Cloave Meadow and from thence by the fresh Meadows east 26° northerly 66 rods and then direct north 220 rods, the whole containing 80 acres "there being Eight Rodd in breadth left in y^e Reare of y^e said former Lott for a highway" and with 8 acres of meadow to be laid out where most convenient.

Patent.

Sir Edmund Andros Dated 30 December 1680.
to Recorded 5 Pat. 27.
John Vincent. Consideration, one bushel of
winter wheat &c.

Grants land upon Staten Island, bounded on the north side by the reare of Claes Ariants Vight stretching West 6° southerly 63 rods bounded west by rear lot of Peter Johnson, thence direct south 220 rods and from thence bounded by the fresh meadow east 26° northerly 68 rods and from thence direct north 188 rods; there being 8 rods in breadth by reare of Claes Ariants left for a highway. Containing 80 acres. Together with 8 acres of meadow to be laid out where most convenient.

Edmund Andros Knt &c Patent.
to Dated 30 Dec. 1680.
John Taylor (Serjant.) Recorded 5 Pat. 19.

Grants land lying upon the Great plain in reare of Coursen & Companys lots, ranging southwesterly 14° 196 rods, thence southeasterly 72° 66 rods, ranging thence northeasterly 14° 196 rods and thence ranging northwesterly 72° 66 rods by land of Coursen & Co. to the first station Bounded westerly by land of David Thomas; southerly by the commons; easterly by the land of John Fitzgarrett and to the northward by land of Coursen & Co. and by the highway. Containing 80 acres. Together with 8 acres of meadow, in all 88 acres.

Edmund Andros Knt &c Patent.
 to Dated 30 Dec. 1680.
 John Fitzgarrett. Recorded 5 Pat. 20.

Grants land lying upon the Great Plain in the reare of the land of Coursen & Co., ranging southwesterly 14° 196 rods; ranging thence southeasterly 72° 66 rods; ranging thence northeasterly 14° 196 rods; ranging thence northwesterly 72° 66 rods by the land of Coursen & Co. to the first station.

Bounded to the westward by land of John Tailor; to the southward and eastward by the commons; to the northward by the land of Coursen & Co. and the highway, with 8 acres of fresh meadow between the plain and the swamp. Containing 88 acres of upland and meadow.

Sr Edmund Andros Knt &c. Patent.
 to Undated.
 David Thomas. Recorded 5 Pat. 21.

Grants tract of land on Staten Island in reare of land of Cornelius Coursen & Co. upon the Great Plain ranging southwesterly 14° 196 rods; ranging southeasterly 72° 66 rods; northeasterly 14° 196 rods; ranging northwesterly 72° 66 rods by land of said Coursen & Co. to first station.

Bounded to the westward by the meadows and swamp; to the southward by the commons; to the eastward by the land of John Taylor; to the northward by the land of said Coursen & Co. and the highway; with 8 acres of fresh meadow lying to the west of the said land. Containing 88 acres upland and meadow.

PART V.

PHILIP WELLES GRANTS.

1680, Nov. 10. Description of a survey of 180 acres of land, lying on the northeast side of Staten Island, joining the northwest side of the farm of Col. Francis Lovelace, laid out for Philip Welles by Ro: Ryder, surveyor, [with draught.] 1 *Land Papers* 171.

.Patent.
 Edmund Andros Dated 1 December 1680.
 to Recorded 5 Pat. 4.
 Philip Wells. Consideration, quit rent of one bushel
 of winter wheat etc.

Recites that "Whereas there is a certaine parcell or Tract of Land lying and being on the northeast side of Staten Island which by virtue of my warrant is surveyed and laid out for Mr. Philip Wells joyning to y^e northwest side of y^e Farme of Coll. Francis Lovelace beginning at a White Oak Tree by the Water side agt. Constables Hook & runns in Length by the east side of a small run one hundred Rodd to a marked black Oak Tree & from thence direct south two hundred Rodd to a marked Tree from thence in breadth west six Degrees southerly one hundred ninety two Rodd to a small white Oak & a great Rock stone from thence in Length Direct north three hundred Rodd by the Line of

Claes Ariens Uicht to a small cove by the water side & from thence east by the water side one hundred ninety two Rodd to y^e first white Oak Tree. Containing in all three hundred and sixty acres of Land there being eight Rodd in Breadth by the Water side left for a Highway.

Grants land so recited "together with y^e said Runn or Streame of Water with Libberty & License to make a Damm & Build & erect a Mill thereon, likewise forty Acres of Meadow to be laid out betwixt y^e point of meadow commonly Mowed by Capⁿ Philip Carteret & the Creeke of Thomas Wandall & all Houses, Buildings, Fences & Improvements already made or to be made on the said Land.

Thomas Dongan Patent.

Dated 17 March 1685.

to Recorded 5 Pat. 319.

Consideration, quit rent of 1 bushel of good

Philip Welles. merchantable winter wheat at N. Y.

Recites patent of 1 December 1680, granting to Philip Welles "a certain tract or parcel of land on the northeast side of Staten Island joining to the northwest side of the ffarme of Coll. Francis Lovelace, beginning at a white oak by the water side against Constables Hooke and runs in Length by the east side of a small run 25 chains to a marked black oak tree and from thence direct south according to the compas 50 chains to a marked tree from thence in breadth west six degrees southerly 55½ chains to a small white oak tree and a Greate Rock Stone from thence in Length direct north 75 chains by the line of Claus Arents Vick to the west side of a small cove by the waterside and thence east by the waterside 55½ chains to the first white oak tree being bounded to the north by the Water or Kill van Kull to the east by the Land of Lambert Johnson Dourlandt to the south by the land of ffancis Lovelace to the west by the Land of Claus Arents Vick;" containing 360 acres, eight rod being left by the water side for a highway and likewise the aforesaid Run or Stream of Water with Liberty and Lycence to make a Dam and build and erect a Mill thereon and likewise 40 acres of meadow laid out behind the Poynt of meadow Commonly mowed by Capt. Philip Carterett and the Creek of Thomas Wandall."

Recites further "And whereas there is a Piece of ground Lying along the said Runn and adjacent thereunto within the Limitts and Bounds aforesaid Containing fifty six Ackers which hath been laid out and surveyed for the said Phillip Welles, Now for a better Confirmacôn" &c.

Grants all the lands rights and privileges so recited.

1686, Feb. 10. Description of a survey of a tract of land containing 360 acres lying on the northeast side of Staten Island beginning by the water side against Constables hook, and bounded on the north by the Kill van Cull, likewise a stream of water with liberty to make a dam and build a mill with the ground adjacent to the said stream, containing 56 acres and 40 acres of meadow, laid out for Philip Welles, by Philip Welles, surveyor. 2 *Land Papers* 148.

For a continuation of the history of the Welles grants see Proceedings of The Natural Science Association of Staten Island, Vol. VI., p. 23.

PART VI.

DORLAND GRANT.

1680, Nov. 29. Description of a survey of about 145 acres of land lying upon the northeast side of Staten Island laid out for Lambert Dorland, by Phillip Welles, surveyor [with draught.] 1 *Land Papers* 176

Edmond Andros

Patent.

Dated 2 December 1680.

to

Recorded 5 Pat. 2.

Consideration one and a half bushels of winter wheat &c.

Lambert Jansen Durland.

Recites that "Whereas there is a Certain Tract or Parcell of Land scituate lying and being on the northeast side of Staten Island against Constable Hook with a Certain Messuage Tennement or dwelling House & Fences thereupon being p'te of y^e Farme or Plantacôn formly belonging to Coll. Francis Lovelace Esq^r late Governo^r here and surveyed and laid out for Lambert Jansen Durland beginning at a White Oak Tree by the Waterside on y^e east side of Philip Wells Land & running southerly up by a small fresh water runn into y^e Woods one hundred Rodd to a marked black Oak Tree and thence due south two hundred Rodd more being in all three hundred Rodd to another marked Tree and thence east six Degrees northerly eighty Rodd and then due north three hundred Rodd to a small Hickery Tree a little distant from y^e Water side then due west Eighty Rodd to y^e first White Oak Tree. Containing one hundred & thirty Acres of Land (eight Rodd in breadth by the Water side being left for a highway) together with fifteen Acres of Meadow in y^e Meadow against John Tunison's Neck on the northwest side of the Island.

Grants land so recited.

1712, May 20. Description of a survey of 154 acres of land, on Staten Island, beginning by the water side of Philip Welles, laid out for Lambert Jansen Dortland, by Aug. Graham, survr. genl.

5 *Land Papers* 101.

"Pursuant to your Excell^ys Warrt bearing date y^e 3rd of April 1712

I repaired to the Land of Lambert Jansen Dortland on Staten Island in order to survey the same and began at a White Oak Tree standing on the east side of a small runn of Water and thence was directed by the s^d Lambert to a heap of stones near an old black Oake tree lyeing on the ground wch the s^d Lambert informed me was the black Oake mentioned in his Patent the s^d tree bears from the White Oake where begun south thirty degrees and thirty minutes east distant one hundred rodd thence I proceeded as patent directed south east and north to the waterside to the place where begun & find that the line mencioned to run due north three hundred rodd falls short fourty four rodd the breadth west to the first station to exceed fourty eight rodd & concluded thence that my proceedure from the black oake was erroneous & began at the first station & measured due east eighty Rodd wch brings me exactly to Lane

parting sd Lambert & Elis Duxbury thence I runn south three hundred rodd & in that course met severall antient markt trees & so proceeded & do find that within the last mentioned survey is contained one hundred fifty four Acres as will appear by the draft hereunto annexed. (See Plate V.)

May 26th, 1712.

AUG GRAHAM.

S. g^l.

PART VII.

LOVELACE AND DUXBURY GRANTS AND PETITIONS.

1687, March 5. Description of a survey of 340 acres of land, lying upon the east end of Staten Island, bounded on the north by the Kill van Kull, and known by the name of Loulace's Farme, laid out for Capt. Thomas Loulace, by Philip Welles, surveyor. (See Plate IV.) *2 Land Papers 213.*

William & Mary Patent.

Dated 19 March 1691.

to Recorded 6 Pat. 374.

Consideration. quit rent of £ 0.12.0

Ellis Duxbury and payable annually on the feast of the

Mary his wife. Annunciation of the blessed Virgin

Mary at Fort William Henry.

Recites that "Whereas Capt. Thomas Lovelace of the county of Richmond was lately seised and possessed of a certaine farm or Plantacion in the said county commonly called or known by the name of Lovelace's farme on Staten Island."

Recites further "And whereas our loving subject Ellis Duxbury of the County of Richmond aforesaid who Married Mary the Neece of him the said Thomas Lovelace Deceased hath by his petition p^rsented to Maj^r Richard Ingoldsby our Commander in Chiefe of our Province of New Yorke and Territorys thereon depending as being the Neerest Heir unto the said Tho^s Lovelace deceased in this Province Prayed our grant and Confirmation of the said farme and Plantac^on Called Lovelaces farme on Staten Island Now in the Tenure and Occupation of him the said Ellis Duxbury."

Grants "All that certaine farm or plantacion commonly called or knowne by the name of Lovelace's farme on Staten Island in the County of Richmond aforesaid beginning by the bay att a Great flatt stone sett up on the north side of a small Runn that is to the south from the Water Place and is marked with the letter L and Runns in Woods west and by north eight degrees and forty five minutes northerly according to the compass, (there being eight degrees forty five minutes variation) from the northwestward sixteen chains to a tree marked on the side of the Hill and from thence south west and by west five degrees and fifteen minutes westerly twenty six chains to the Land granted to Captain John Palmer and from thence west and by north five degrees and forty five minutes northerly twenty-six chains to an oak tree marked with a great stone growing in the root of the tree which is a marked tree of the land of Phillip Welles and from thence by his line northeast and by east five degrees and fifteen minutes easterly thirty three chains to the southwest corner of the

Land of Lambert Johnson Dorland and soe by his reare east six degrees north-erly twenty chains to his corner marked tree on the side of a hill and from thence by his line of marked trees north seventy five chains to the Bank and soe forward to low water marke and from thence by low water marke Round- ing as it Runns to the first stone marked by a small runn being bounded east by the Bay south by marked trees of the land of Capt. John Palmer to the west by the land of Philip Welles and Lambert Johnson Dorland and north by the mouth of the Kill van Cull. Containing in the whole 340 Acres with 30 acres of salt meadow to be laid out in that body of meadows against Carterets Point near the meadow laid out for Philip Wills."

"Always provided that anything herein Contained shall not be taken or Construed to Barr or Deprive any nearer Heir or Heirs of him the said Thomas Lovelace Deceased of his or their Rights to the farme or Plantaciõn aforesaid if any such Heir be."

Petition Dated 13 June 1702.
of

Ellis Duxbury Recorded 3 Land Papers 69.
and Mary his wife.

"To his Excellency Edward Lord Cornbury his Magtles Capt. Generall and Governor in Chief of the Province of New York & Vice Admiral of ye same and ye Honble Councell.

The humble petition of Ellis Duxbury & Mary his wife

Most Humbly Sheweth

That yo^r peters unkle Capt. Thomas Lovelace was possest of a certaine farme or small tract of land upon Staten Island in ye County of Richmond which hee peaceably enjoyed for upwards of 20 years And having no children sent for ye pet^{rs} from Barbadoes, but before they had Arrived at New York was deceased his widdow hearing yt ye pet^r was come sent for them telling them it was her husbands desire they should have ye s^d ffarme & delivered them possession thereof (reserving to herself maintenance for her life) which they have enjoyed ever since the year 1689 having been att great charge in building, clearing & fencing &c.

Yo^r Pet^{rs} humbly therefore prays yo^r Excellency and Councell will be pleas^d to grant them A pattent for the said land with such small covenants and Quitt Rent as other his Majtles tennants in ye s^d County hold their land. And ye Pet^{rs} as in duty bound shall ever pray &c."

August 21. Description of a survey of 340 acres of land, with 25 acres of salt meadow, lying on the north side of Staten Island, laid out for Ellis Dux- bury, by Pieter Cortelyau, Surveyor.

3 Land Papers 69.

Petition Dated 5 Aug. 1708?
of

Ellis Duxbury. Recorded 4 Land Papers 126.

"To his Excelley Edward Viscount Cornbury Capt. Gen^l & Gov^r in Chief of the Province of New York, New Jersey & Terries depend- ing thereon in America & Vice Admiral of the same &c.

The humble Petition of Ellis Duxbury.

Humbly Sheweth That whereas y^r Excell^y Petitioner did sometime ago obtain from Excell^y in Council an Order for Surveying the Land which he lives upon and has had in possession and the possession of his predecessors for upwards of Thirty years, which Survey was made according to the said Order & Returned into this office, and this was done to the End y^r Lord^{ps} Petit^r might obtain your Excell^{ys} Pat^t for the said Land But the said Patent not being yet Expedited.

Your Excell^{ys} Petio^r doth therefore most humbly Pray y^e Lordship will please to grant him a Patent for thesaid Land, according to the said Survey, under such moderate Quit rent as unto y^r Excell^y in y^r great wisdom shall seem meet.

And y^r Lordships Petio^r as in Duty bound shall ever pray &c.

ELLIS DUXBURY."

Anne
by the Grace of God of Great Brittain
ffrance and Ireland, Queen,
Defender of the ffaith &c.
to
Ellis Duxbury and Mary
his wife.

Patent.

Dated 26 Aug. 1708.

Recorded 7 Pat. 385.

Consideration, quit rent
of 12 shillings current
money of N. Y. payable to the
Receiver General at the feast
of St. Michael the Archangel
at the Custom House in N. Y.

Recites: "Whereas our Loving Subject Ellias Duxbury by his Petition presented to our Right Trusty and wellbeloved Couzin Edward Viscount Cornbury Capt Gen^l & Gov^r in Chiefe of our Province of New York and Territories Depending in America and Vice Admirall of the same &c in Council have Prayed our grant and Confirmation for all the farme or Plantation Commonly Called and known by the Name of Lovelaces ffarme now and for many y^{rs} last Past in the Tenure or Occupation of y^e said Elias Duxbury scituate lying and being in the County of Richmond on the north side of Staten Island being by a small Run on the north side and from thence twenty degrees northerly sixteen chains to a black oak tree marked on three sides and from thence west twenty eight degrees thirty minutes southerly twenty six chains to a white oak tree marked on all four sides and from thence west seventeen degrees northerly twenty six chains to a white oak tree marked on all four sides and from thence east twenty eight degrees thirty minutes northerly thirty three chains to a white oak tree marked with the letters P. W. and from thence six degrees northerly twenty chains to a black oak tree marked on all four sides and from thence north seventy five chains to the Bank and so forward to low water mark and from thence by low water mark rounding as it runs to the first station by the small run. Being bounded to the east by the bay south by marked trees and to the west by the land late of Dyonus Teunisson and Lambert Jansen Dorlandt and north by the mouth of the Kill van Kull. Containing 340 acres more or less. And also twenty five acres of salt meadow against Carteretts Point being bounded to the northwest by y^e Maine Creek southeast by the Meadow of

Dyonnis Teunessen and a small creek northeast by Lambert Jansen Dorlandts Meadow * * the which Petition we are willing to grant * * *."

Grants lands so recited.

Record of the Probate	Will Dated 5 May, 1718.
of	Will Proved 22 October 1718.
The Last Will and Testament	Recorded, Liber 9 of Wills,
of	p. 3. N. Y. Surrogate's Office.

Ellis Duxbury, deceased.

In the Name of God, Amen.

I Ellis Duxbury of Staten Island in the County of Richmond and province of New York being in Good health and of Sound and perfect mind and memory Praised be Almighty God for the same do make and declare this my Last will and Testament in manner and form following (that is to say) first and principally I commend my Soul into the hands of Almighty God who Gave it trusting and assuredly believing to have free Pardon of all my Sin through the only merits of my Saviour Jesus Christ and my body I commend to the Earth to be decently Interred at the discretion of my Executors hereafter named and as for that Temporary Estate Wherewith it hath Pleased God to bless me, I Dispose thereof as followeth Viz I Give and Devise all that my Plantation or Tract of Land on which I now live Scituate and being in the County of Richmond and Province of New York, Together with the Tenaments hereditaments and appurtenance to the same belonging to the Corporation of The Minister Church Wardens and Vestry of Saint Andrew in the County of Richmond and to their Successors for Ever to and for the only use and maintenance of the present Minister and Incumbent of the said church, the Reverend Master Aeneas Mackenzie during his natural Life and after his decease to his Successors Ministers and Incumbents of the said Church of Saint Andrew at all time hereafter being Orthodox Ministers and of the church of England as now by Law Established but to no other use or uses whatsoever Except in Case of Voidance or Vacancy of such an orthodox minister Dureing Such Time I give the benefite and advantage of my said Plantation to the widow of the Preceding Incumbent until the be such an Orthodox Minister as a for Said Instituted and Indented into the said Church of Saint Andrew and I do make and appoint his excellency Brigadier Robert Hunter our Present Governour of the said province and his Successors Governours of the Same forever to see that the said Plantation or any part thereof according to the Patent Granted me under the Seale of the Said Province be not taken from or put to any other use or uses than is herein and hereby mentioned and Expressed and also to see that no Waste be committed upon the same by Inhabitants thereof by of any Timber or firewood other than for the use of the said Plantation. Item I give and bequeath one hundred pounds current money of New York for the severall uses following (that is to say) for and towards the Building a Vestry Room at the Discretion of my Executor and of the Corporation church Wardens and Vestry of Saint Andrews Church for time Being to build a handsome Porch for the church door to pale in the Church Yards and to buy a pall to Cover the Bier I Give and Bequeath ten pounds Current Money of New York to be Dis-

posed of by my Executor to such poor of the County aforesaid as he shall think fitt and Lastly after my debts Legacies and funeral Expenses paid and discharged I give devise and bequeath unto Master Aeneas Mackenzie now Minister of Saint Andrews Church All my personal Estate in the Province of New York Viz All my Negroes Money plate goods and Chattels Whatsoever not hereinbefore given or Bequeathed and I make him full and Sole Executor of this my Last Will and Testament and I doe hereby Revoke Disannull and make Void all former and other Will and Wills Gifts Grants Bequests and Legacies by me at any time heretofore given Willed or bequeathed either by word or by Writing and this only and none other to stand for Remain And be as my Last Will and Testament. In Witness Whereof I have hereunto sett my hand and Seale this fifth day of May in the year of Our Lord one thousand seven hundred and eighteen.

ELLIS ϕ . DUCKBURY.

Signed,

Sealed Published pronounced and Declared to be the Last Will and Testament of the Testator in the presence of us

WALTER DONGAN, WILLIAM TILLYER, MARGET TILLYER.

New York October twenty Second 1718.

Then appeared before his Excellency Robert Hunter Esq &c. William Tillyer and Marget Tillyer and made Oath that they did See Ellis Duxbury Seal publish and declare the within to be his Last Will and Testament and that at the time thereof he was of Sound Memory and Disposing mind to the Best of their knowledge and that they seen one another and Walter Dongan Subscribe as Witness to the same and that the said Walter being sick he could not be here for Proveing of this Will Without Endangering his Life to the best of their knowledge.

RO: HUNTER.

Memorandum

That on the Twenty Second day of October 1718 the Reverend Mr. Aeneas McKinzie Executer appointed in the Within Will Took the Oath of Executer before me.

RO: HUNTER.

Robert Hunter Esqr Captain General and Govenour in Chiefe of the Provinces of New York New Jersey and Territories thereon depending in America and Vice Admiral of the same &c To all To Whom these Presents shall come or may Concern Greeting Know Yee that at New York the two and twentieth day of October the Last Will and Testament of Ellis Duxbury was proved approved and allowed of by me haveing while he lived and at the time of his death goods Chattels and Creditts in diverses places Within this province by means Whereof the full Disposition of all and Singular the Goods Chattells & Creditts of the said deced and the granting the administration of them also the hearing of Account Calculation or Reckoning and the finale Discharge and Dismission from the same unto me Soly and not unto any other Inferiour Judge Manifestly known to belong and the Administration of All and Singular the Goods Chattels and Creditts of the said deced and his Last Will and Testament in any Manner of Way Concerning was granted unto Aeneas Mackenzie the Executor

in the said Last Will and Testament Named Chiefly of Well and Truly Admin-
 istring the same and of makeing a true and perfect Inventory of all and Singu-
 lar the Goods Chattels and Creditts of the said decêd and Exhibiting the same
 into de Registry of the Prerogative Court in the Secretarys office at or before
 the two and twentyeth of Aprill next Ensuing and of Rendring a just and true
 account Calculation or Reckoning when thereunto required. In Testimony
 Whereof I have Caused the Prerogative Seale to be hereunto affixed at New
 York the two and twentyeth day of October Anno Dom 1718.

JA. ALEXANDER, Scry.

SEE PLATE I.

Tracing from the original draft of a survey of land laid out for Capt. Thomas
 Loulace in 1687.

LIST OF PLATES.

PLATE I.

Map showing old farm lines in Castleton, Staten Island.

PLATE II.

Tracing from the original draft of a survey of land laid out for Andrew Norwood,
Oct. 5th, 1676.

PLATE III.

Diagram showing relative positions of the northern grants of land made in
Dec. 1680.

PLATE IV.

Tracing from the original draft of a survey of land laid out for Capt. Thomas
Loulace in 1687.

PLATE V.

Tracing from the original draft of a resurvey of land laid out for Lambert Jansen
Dortland in 1712.

c. Nat. Sci. Assn., S. I.

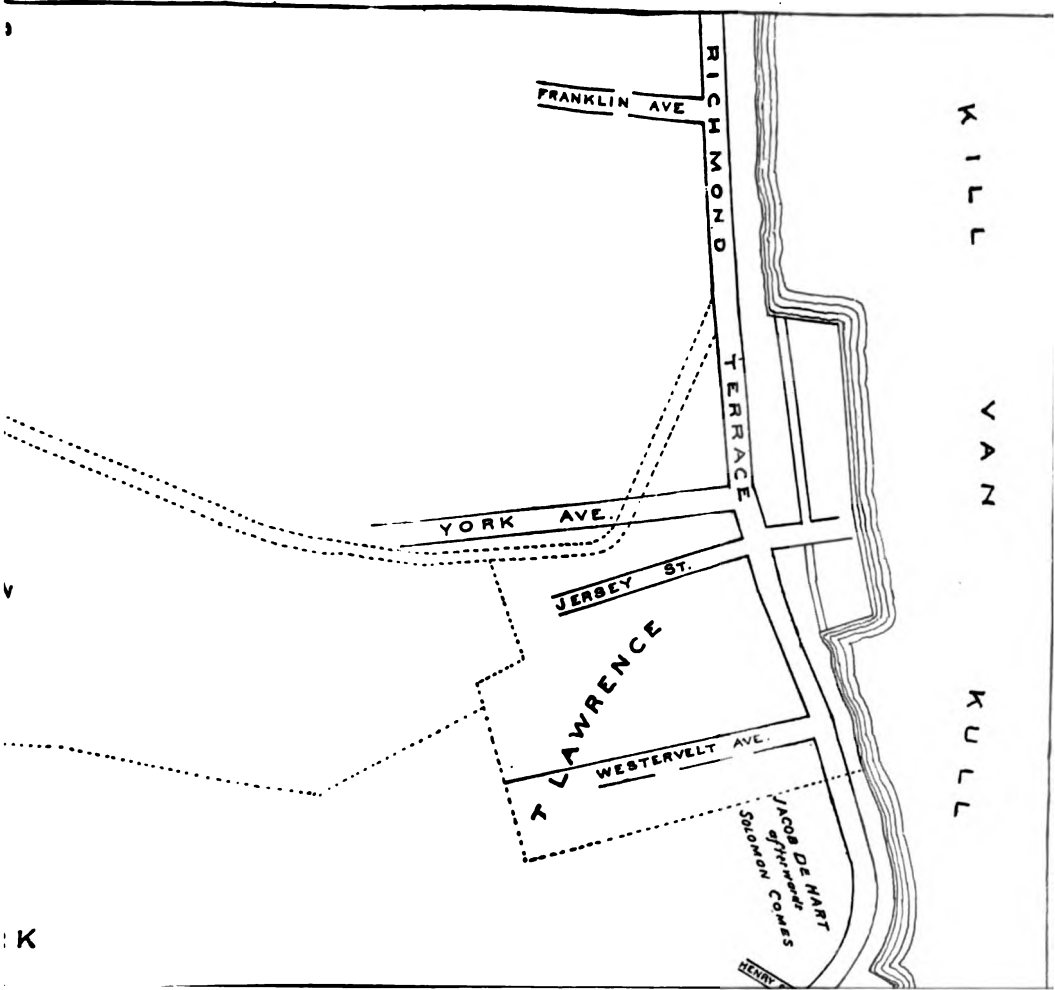
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WILLIAM VREELAN

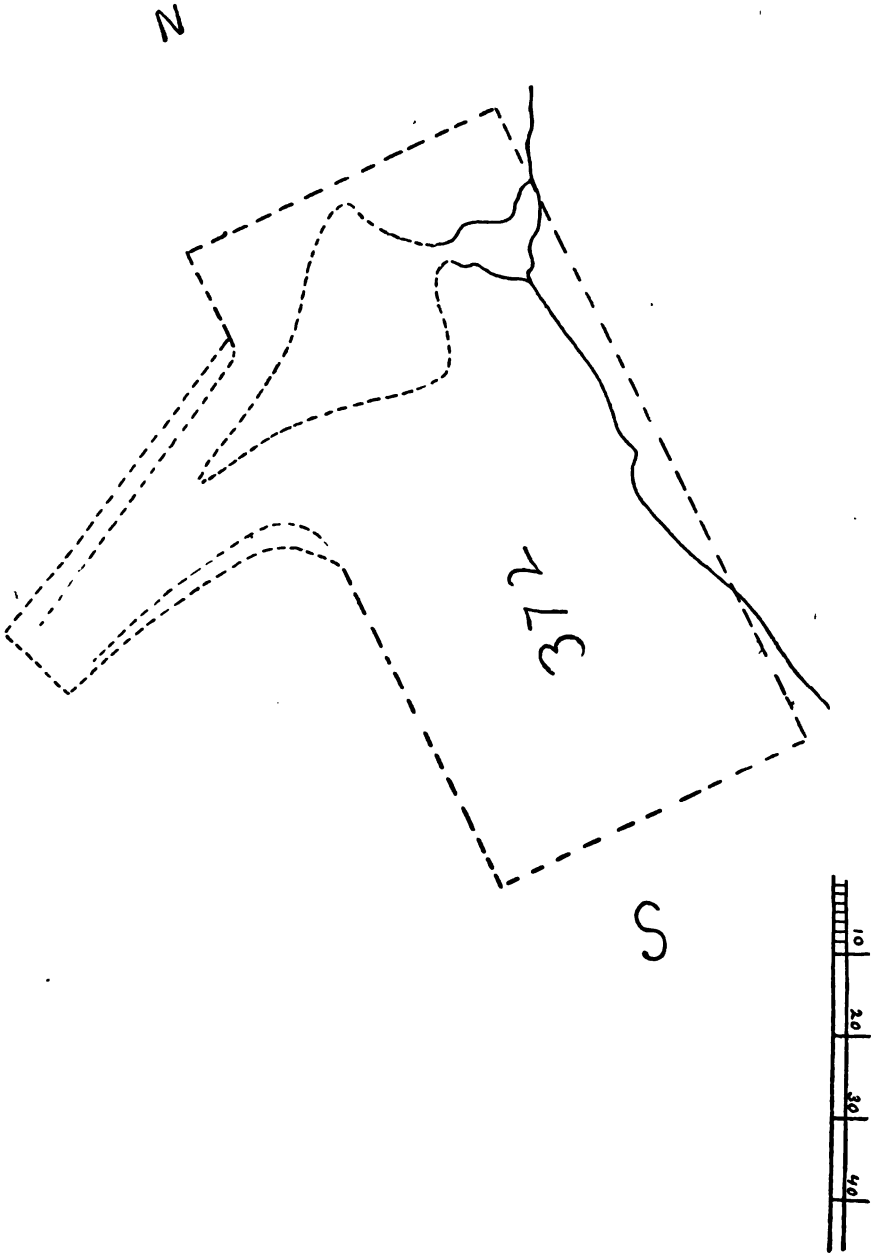
PATENT

ABRAHAM CROCHERO

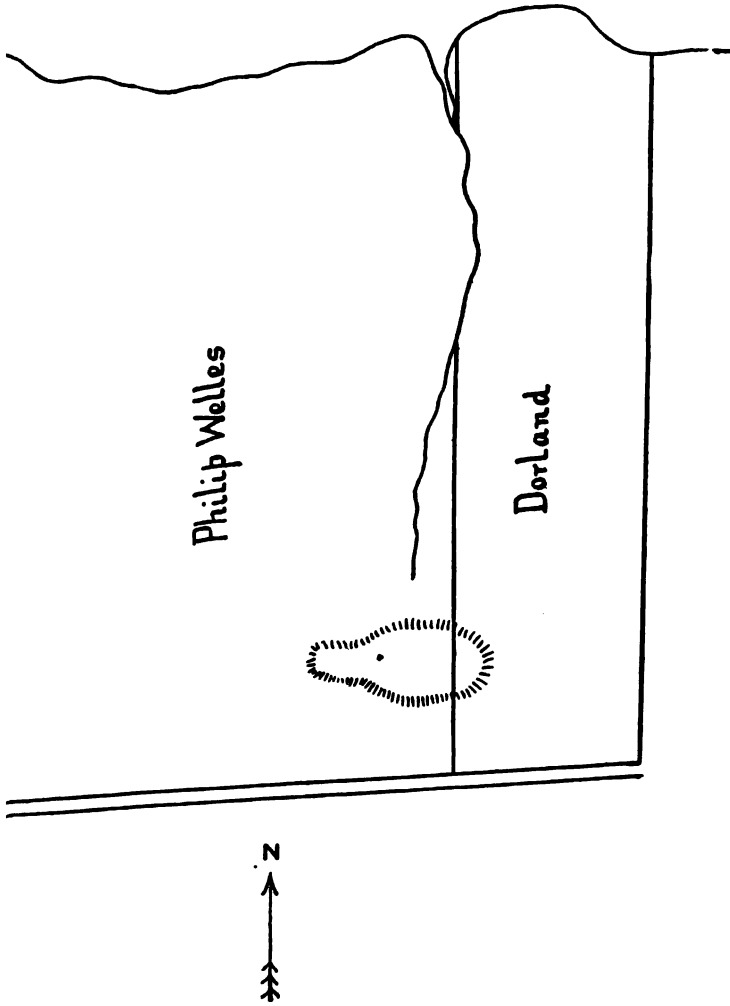
LAMBERT

PHILIP VAN BUSK

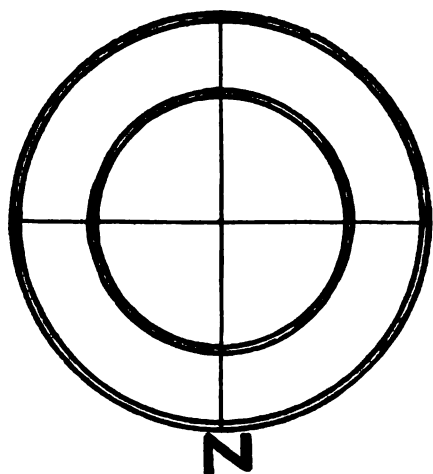




Garrett Cruse		
Cornelis	Gyles	Jansen
Peter Jansen		
Claus Arentse		
Vincent		

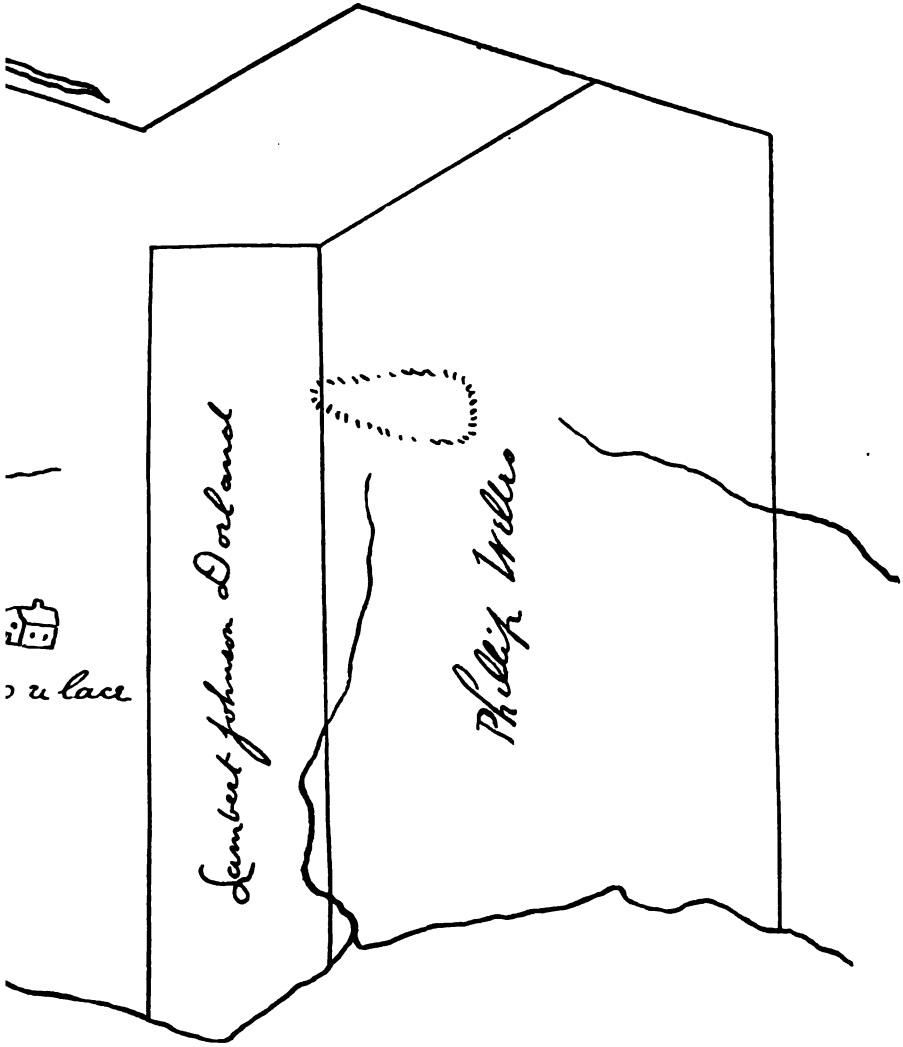


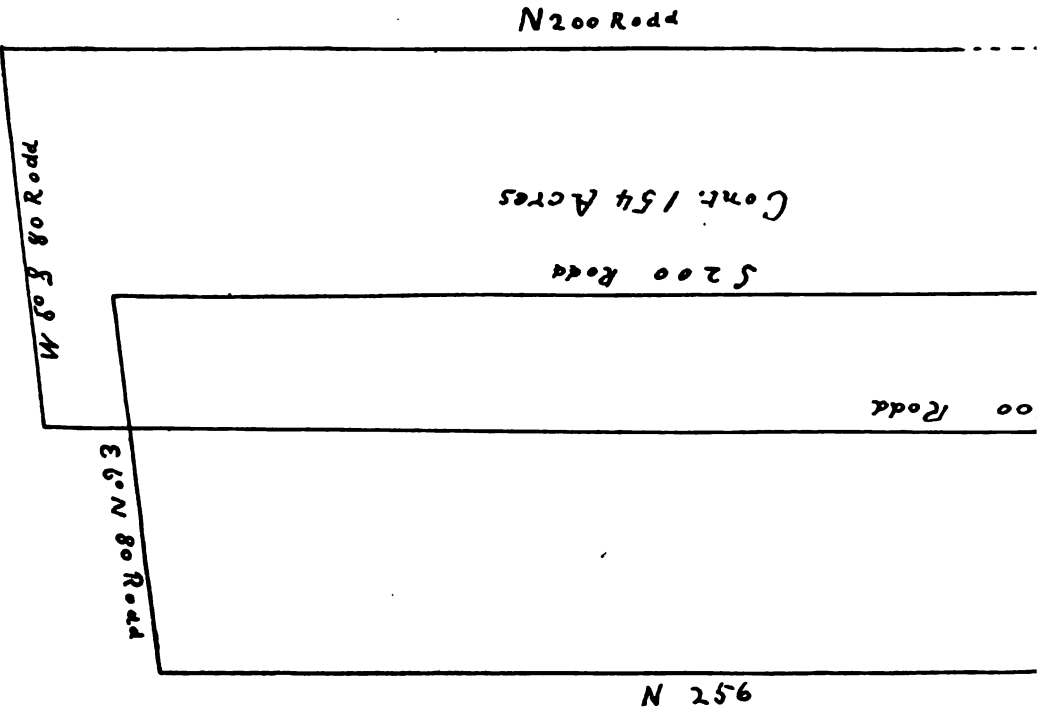
Scale: 1 inch = 80 rods.

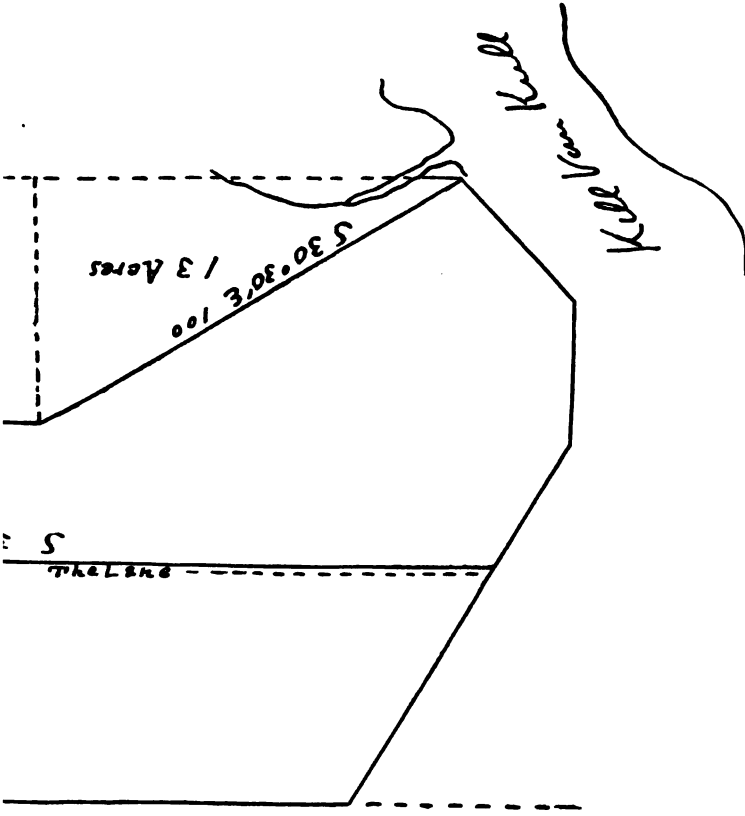


Laid Down by A scale of
Eighty Rods to an Inch









The Draft of Lambert Jansen Dorlands
Land on Staten Island Set-Down by a Scale
of forty rods to an inch.

APR 30 1904

PROCEEDINGS
OF
The
Natural Science Association
of Staten Island.

VOLUME VIII.

December 8th, 1900, to October 10th, 1903.

EDITED BY ARTHUR HOLLICK, SECRETARY.

NEW BRIGHTON, N. Y.

1903.

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Armillaria mellea	25	Cressonia juglandis	48
Aster. Sick-leaved golden.....	5	Crucibulum vulgare	25
Atrypa reticularis compressa ...	2	Cuterebra	53
Azalea	30	Cynachum nigrum	65
Bag worm	31, 37	Cyrtina hamiltonensis.....	2
Baltimore oriole	39	Cyrtolites expansus.....	2
Barred owl.....	12	Daisy	29
Basket worm.....	31, 37	Dalmanites anchiops	2
Bee. Bumble.....	53	Dandelion. Red-seeded.	31
Beech.....	34	Datura	48
Blackberry	48	Deidamia inscripta.....	48
Black swallow-wort.....	65	Deilephila lineata	48
Blue violet.....	39	Diapheromera femorata	35
Bolotus chrysenteron	25	Diervilla Diervilla	5
Bot-fly. Rabbit.....	53	Diervilla trifida	5
Branchipus	53	Dogwood	30
Bull frog.....	28	Dragon fly.....	5
Bumble bee	53	Eatonia peculiaris	1
Butcher bird	12, 13	Eucalyptus Geinitzi	15
Canada lily.....	30	Evening primrose. Sinuate-leaved.	5
Canada sphinx.....	48	False pimperl	5
Cantharellus cinnabarinus.....	25	Favosites	2
Carolina sphinx	48	Fenestella	2
Cedar.....	34	Festuca capillata.....	16
Ceratonia amyntor.....	48	Frog. Bull	28
Ceratonia undulosa	48	Frog. Swamp tree.....	28
Chelopus muhlenbergii	44	Garnet	58
Chemung sandstone.....	53	Golden aster. Sick-leaved.....	5
Choerocampa tersa.....	48	Golden rod	29
Chorophilus triseriatus	28	Graphite	58
Chrysopsis falcata.....	5	Great green vine hawk moth.....	47
Cicada.....	44	Grosbeak. Rose-breasted.....	12, 13
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Clavaria pulchra.....	25	Hemaris thysbe	48
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<i>Hircinia acuta</i>	12	Noctuid moth.....	48
Holly	30	Northern shrike.....	12
<i>Hypochaeris radicata</i>	30	<i>Oenothera laciniata</i>	5
<i>Hypholoma sublateralitium</i>	25	Oriole. Baltimore.....	39
<i>Ilysanthes attenuata</i>	5	Oriskany sandstone.....	1
<i>Ipomaea hederacea</i>	5	Owl. Barred.....	12
<i>Irpex cinnamomeas</i>	25	<i>Oxalis corniculata</i>	5
<i>Irpex fuscescens</i>	25	<i>Paonias excæcatus</i>	48
Ivy-leaved morning glory.....	5	<i>Paonias myops</i>	48
Knawel	31	<i>Papilio ajax</i>	65
<i>Lanius borealis</i>	12	<i>Pentamerella arata</i>	2
<i>Laurus plutonia</i>	15	<i>Petunia</i>	48
Leech	57	<i>Phacops cristata</i>	2
<i>Lenzites betulina</i>	25	<i>Philampelus achemon</i>	48
Leopard moth	28	<i>Philampelus pandorus</i>	47, 48
<i>Leotia lubrica</i>	25	Pimpernel. False.....	5
<i>Lestes eurina</i>	5	Pine. White.....	34
Lily. Canada	30	<i>Plectrophenax nivalis</i>	35
Lily. Turk's-cap.....	30	<i>Plethromytilus arenosa</i>	2
Limestone. Lower Helderberg ...	2, 53	<i>Polypodium vulgare</i>	20
<i>Limnabates lineata</i>	62	<i>Polyporus oblectans</i>	25
Limonite.....	17, 42	<i>Polyporus splendens</i>	25
Linden	34	<i>Populus apiculata</i>	15
<i>Liriodendropsis simplex</i>	15	Praying mantis.....	43
Locust. Seventeen-year.....	44	Primrose. Sinuate-leaved evening.	5
Lower Helderberg limestone.....	2, 53	<i>Protæoides daphnogenoides</i>	15
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Marmolite.....	42	<i>Puccinia argentata</i>	25
Marsh treader.....	62	<i>Puccinia graminis</i>	25
<i>Megalanteris ovalis</i>	1	Rabbit bot-fly.....	53
<i>Meristella lata</i>	1	<i>Rana catesbiana</i>	28
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Moss. Club.....	29	<i>Rytisma acerinum</i>	25
Moth. Great green vine hawk.....	47	<i>Rytisma solidaginis</i>	25
Moth. Hawk.....	47, 48	Rose-breasted grosbeak.....	12, 13
Moth. Leopard.....	28	<i>Russula emetica</i>	25
Moth. Noctuid.....	48	Sandstone. Chemung.....	53
Muhlenberg's turtle.....	44	Sandstone. Oriskany.....	1
<i>Myrica longa</i>	15	Sassafras	34
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Snow bunting.....	35	Trailing arbutus.....	30
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Sphinx eremetis.....	48	Turtle. Muhlenberg's.....	44
Sphinx kalmiae.....	48	Uromyces lespedezæ.....	25
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Spirifer arenosus.....	2	Viola Brittoniana.....	39
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Stereum versicolor.....	25	Viola palmata sororia.....	39
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Swallow-wort. Black.....	65	Yellow procumbent wood-sorrel....	5
Swamp tree-frog.....	28	Zamelodia ludoviciana.....	12
Syrnium nebulosum.....	12	Zaphrentis.....	2
Talc.....	42	Zeuzera æsculi.....	28
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JAN 22 1902

15,550

PROCEEDINGS OF THE NATURAL SCIENCE ASSOCIATION, OF STATEN ISLAND.

VOL. VIII. No. 1.

DECEMBER 8th, 1900.

The adjourned Twentieth Annual Meeting of the Association was held at the residence of Dr. Arthur Hollick, New Brighton.

In the absence of the president Mr. Thos. Craig was elected chairman *pro tem*.

Reports of officers for the past year were read and approved as follows:

Secretary:

Number of active members on roll at date of last annual report.....	82
Resigned,.....	8
Deceased,.....	2
Dropped.....	2
Elected.....	6
Leaving on roll at date.....	76

Treasurer:

Balance on hand at date of last annual report	\$333.61
Receipts	248 90
	<u>\$581.70</u>
Disbursements.....	91 80
Balance on hand.. . . .	<u>\$489 90</u>

Curator:

Number of separate donations to the museum	9
Number of specimens included in the above	222
Classified as	
Mineralogy	113
Geology and Paleontology.....	86
Botany	20
Entomology ..	2
Antiquities	1
Number of societies and institutions on the mailing list	66
Number from which publications were received as exchanges.....	50
Number of separate titles included in above.....	63

The Natural History Society of Wisconsin and the Northern Indiana Historical Society were added to the mailing list during the year

The election of officers for the ensuing year resulted as follows:

President, Lester W. Clark, Sr ; Secretary, Arthur Hollick; Treasurer, J. Blake Hillyer; Trustee, Wm. T. Davis.

On motion the election of a curator was deferred and Mr Thos Craig was elected curator *pro tem*.

On motion it was resolved: that until further action be taken, the regular meetings of the Association, during the ensuing year, be held on the second Saturday evening of each month.

Dr. Arthur Hollick exhibited specimens and read the following account of

SOME RECENT FINDS OF FOSSILIFEROUS DRIFT BOWLERS.

Since our October meeting a number of Drift bowlders containing fossils have been found, two of which deserve special mention, not only by reason of the well-preserved fossils contained in them, but also because eight of these are additions to our previously published lists.

For the identification of species I am indebted to Mr. Gilbert Van Ingen of Columbia University.

1. Devonian (Oriskany) bowlder, found near Richmond:

Eatonia peculiaris Conr.

Meristella lata Hall.

Metaplasia pyxidata Hall.

Megalanteris ovalis Hall.*

- Spirifer arrectus* Hall
Spirifer arenosus Conr.
 2. Devonian (Schoharie) boulder, found on
 Ocean Terrace.
Atrypa reticularis impressa Hall.
Conocardium cuneus Conr.*
Cyrtina hamiltonensis Hall.
Cyrtolites expansus Hall ?*
Dalmanites anchiops Green:
Favosites sp?
Fenestella sp?
Mytilarca (Plethomytilus) arenosa Hall*
Pentamerella arata Conr.
Phacops cristata Hall.
Reticularia fimbriata (Conr.) ?*
Rhipidomella alsa Hall.
Spirifer macrus Hall.
Stropheodonta callosa Hall.*

Stropheodonta demissa Conr.
Stropheodonta inaequiradiata Hall.
Strophonella ampla Hall.
Zaphrentis sp?

Many of the Schoharie species are abundantly duplicated. This is especially true of the *Atrypa*, of which there are a dozen or more splendidly preserved specimens, representing both interior and exterior impressions.

In addition to the above there were also found two boulders of Lower Helderberg limestone containing fossils, one on Fox Hills, the other at Prince's Bay,—but too much decomposed for accurate determination of the fossils.

*Species marked with an asterisk denote additions.

JAN 22 1902

15,650.

PROCEEDINGS OF THE NATURAL SCIENCE ASSOCIATION OF STATEN ISLAND.

VOL. VIII. No. 2.

T JANUARY 12th, 1901.

The regular meeting of the Association was held at the Staten Island Academy.

In the absence of the president Mr. Howard R. Bayne was elected chairman *pro tem*.

Mr. Arthur G. Thompson, Rosebank; was elected an active member.

Mr. C. A. Ingalls was elected curator.

The following paper by Mr. L. P. Gratacap was read :

THE CLOVE VALLEY PLISTOCENE LAKE BASIN.

A paragraph quoted in our Proceedings of October 13th, 1900, taken from the "*Report upon New York's Water Supply*," etc., and referring to the geological import of the Clove Valley, recalls some speculations indulged in by the writer for many years, in regard to that interesting and formerly very beautiful depression. This valley is a topographical feature that strikes the geological observer at once and suggests a series of surmises in regard to its origin. It is essentially a serpentine-walled depression which owes its general form to conditions or agencies which date as far back as Archæan time. If the serpentine hills which surround it are the result of changed hornblende rocks (schists?), and if these represent metamorphosed igneous rocks, the depression may have begun at the time when these latter first appeared. It certainly does not seem probable that this valley was at any time solidly filled up with serpentine or other rock masses, and that it has been excavated by aerial fluvial, or glacial agents. The base-leveling of the surrounding serpentine hills is quite uniform and it is difficult to conceive of any action especially centralized which would have scooped

out the contents of this bowl; if its original surface had been continuous with the tops of the encircling walls.

Assuming then it was an original topographical feature, not unlike, on a greatly reduced scale, the gaps existing between parallel and subsequently confluent hill or mountain ranges, as in the Appalachian region, its later history offers a field for conjecture, which may be partially at least, helped by observation upon its present aspect.

It has its walls broken down at two points, which are somewhat in a line with each other, as if they might have been the exit and entrance of tides from the ocean, or common points in the course of a short stream. One of these openings occurs to the south, at the Clove, where the Midland trolley line connects with its Richmond Road branch, and the other to the north, along the line of the valley in which are located Britton's, Martling's and Brooks' ponds. It is probable that these gateways to the valley were formed in preglacial time, indeed in Archæan or earlier Palæozoic time. It seems to the writer that the Clove Road gap represents a breach effected by weathering and the attacks of oceanic storms while the valley northward is a river course or a passage way for the drainage of the serpentine highlands at a time when their elevation in all probability exceeded their present altitude ten or more times, and has been worn down by aqueous or river erosion.

Of course glaciation, which so profoundly modified all surface features, affected the character of our valley. It changed it principally by leaving over it a blanket of drift, greatly filling up its original floor, and possi-

bly through an ice dam or a drift barrier, or both, for some time in its history converted it into a glacial lake. There seems to be some confirmatory evidence on this point, as on the northern slope of Ocean Terrace, hidden completely in the woods, there is a narrow shelf of earth and drift which suggests a remnant of an ancient beach—a smoothed and level shore strand. Again, on the east side of the valley, between Martling's and Britton's ponds, there is a high bank of glacial sand, which has been partially removed by artificial means, but which doubtless extended farther west and may have originally formed a dam at this end of the glacial lake. The surface of this sand bank is a level field and its elevation is approximately the same as the apparent fragment of the ancient shore bench on Ocean Terrace.

If this surmise is correct the character of the dam at the gorge through which the Clove road passes is a matter for further observation to determine. It was probably glacial. At any rate the uplift of the continental rim, after the glacial period, tilted the valley flooring northward, and the drainage forced its

way out along the section now occupied by the three ponds, and removed the western portion of the sand dam previously mentioned.

We have thus a preglacial basin traversed by a preglacial channel or stream-bed, which was succeeded by a post-glacial lake. The corroborative details of this theory or its refutation may afford an interesting field for research for the members of the Association.

RECENT LITERATURE RELATING TO STATEN ISLAND.

An Example of Deductive Reasoning.
Arthur Hollick.

The Plant World, Vol. iii (Dec 1900) pp. 184, 185.

A popular article describing the discovery of the Mastodon's tooth in the Moravian Cemetery, with special reference to it as an example of reasoning from known facts to theoretical conclusions and the subsequent verification of the conclusions by the discovery of additional facts.

The original account of the discovery was published in our Proceedings of October 14, 1899.

JAN 20 1902

15,850.

PROCEEDINGS
OF THE
NATURAL SCIENCE ASSOCIATION
OF STATEN ISLAND.

VOL. VIII. No. 3.

7 FEBRUARY 9th, 1901.

The regular meeting of the Association was held at the residence of Mr. Lester W. Clark, with the president in the chair.

Mr. Wm. T. Davis exhibited specimens of and read the following memoranda on

ADDITIONS TO OUR LOCAL FAUNA AND FLORA

Lestes eurina. This small dragon-fly was taken on two occasions (June 18th and July 4th) at a small pond back of the Moravian cemetery. Five other species of *Lestes* have been found on the Island and six species are recorded from New Jersey. The present species is an addition to the printed list of New Jersey dragon-flies as well as to that of Staten Island (Journ. N. Y. Ent. Soc., vi. (1898), 195-198.)

Colias eurytheme. A specimen of this butterfly was seen in a field near Richmond on the 20th of last October. Not having a net with me the insect escaped, but it was approached to within less than a yard, so that the identification is certain. The species has been found in New Jersey and is met with rarely on Long Island, but has not heretofore been reported from Staten Island.

Oxalis corniculata, L. The yellow procumbent wood sorrel has been found as a weed about greenhouses on the Island.

Enothera laciniata, Hill. The sinuate-leaved evening primrose was discovered last June, growing as a weed in our garden at New Brighton, by Miss F. J. Thompson.

Ipomoea hederacea, Jacq. The ivy-leaved morning-glory was discovered last September, in a field near the old fort at Richmond.

Ilysanthes attenuata, (Muhl.) The false pimpinell was found in July, 1898, near Graniteville

Dierzvillea Diervilla, L. (*D. trifida*). This shrub was reported from Todt Hill many years ago by Mr. G. W. Wright, but as far as I am aware no specimens were preserved and certainly none have been found in that locality in recent years. In June, 1897, a small clump of bushes belonging to this species was found near the bank of Betty Holmes' Brook, at Green Ridge.

Chrysopsis falcata (Pursh) Several specimens of the sickle-leaved golden aster were collected at Watchogue, in July 1893.

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PROCEEDINGS OF THE NATURAL SCIENCE ASSOCIATION OF STATEN ISLAND.

Vol. VIII. No. 4.

MARCH 9th, 1901.

The regular meeting of the Association was held at the Staten Island Academy

In the absence of the president Mr. E. C. Delavan was elected chairman *pro tem*

The committee appointed to consider the subject of renaming the streets and highways of the Island, where names have been duplicated, submitted the following

REPORT OF PROGRESS.

To the Natural Science Association of Staten Island.

Your Committee on the renaming of streets and highways begs to report as follows:

No meeting of the Committee has been held since the communication made to the President by Mr. Davis. After the last meeting of the Association it was apparent that a final report could not be made until a list of streets had been prepared for purposes of comparison and renaming. Such work has already been begun. The plan adopted is to prepare a list of all streets alphabetically arranged. The Robinson Atlas is being used for this purpose. By the next meeting of the Association it is expected that the list will be completed and all duplications ascertained and that the final report of the Committee will then be submitted.

Accompanying this report is [I.] the preliminary report of Mr. Davis, together with [II. and III.] the communications in relation to the matter, from Mr. George Cromwell,

President of the Borough.

Respectfully submitted,

LESTER W. CLARK.

For the Committee.

I.

To the President of the Natural Science Association.

Dear Sir:—At your request I have prepared the following list of a few of the streets, avenues and roads of the Island the names of which are duplicated. The list is accompanied by a few suggestions that may perhaps be of some use to the City authorities in renaming them.

Richmond avenue, Port Richmond
" " Clifton.

The first of these was originally known as the Church road, from the fact that it leads to the old Dutch Church, of which Dr. Brownlee was so long pastor. Church road is quite as euphonious and agreeable as Richmond avenue, and the old name should be restored. We still have the Richmond road, the Amboy road and the Fresh Kill road, and to change any of these would be a great mistake. The Boston road, which runs through a closely-built section of Bronx Borough, has a much more significant name than if it had been changed to Boston avenue or Boston street.

Washington avenue, Mariners' Harbor.
 " " near Huguenot.
 " " Grant City.

The first of these was originally known as the Old Place road, and we think that the name should be restored. Washington avenue, Grant City, could be called Grant avenue,

Broadway, West New Brighton.
 " Huguenot.
 " Tottenville.
 " Port Richmond.

The second of these was originally known as Fox avenue, and the name could be restored. Broadway, Tottenville, might well be called Androvette street, after the old Huguenot family by that name. Broadway, Port Richmond, might take the name of Draper street, after Dr. John W. Draper who resided on Cherry lane. The services of Dr. Draper and his two sons, to science and his tory, should entitle their memory to a lasting place in the vicinity of their old home.

Central avenue, New Brighton.
 " " Mariners' Harbor.
 " " Tottenville.

Central avenue, Mariners' Harbor could be called DeHart avenue, after the old family by that name settled in the neighborhood since about 1700. Central avenue, Tottenville, could be called Larzelere avenue, after the old Huguenot family settled in that quarter of the island.

Tompkins avenue, New Brighton.
 " " Clifton.

These avenues were named in honor of Daniel D. Tompkins, formerly Governor of the State of New York, Vice-President of the United States and Judge of the Supreme Court. He was long a resident of New Brighton, and for him Tompkinsville was named. Tompkins avenue, Clifton, could well be called Appleton avenue, after that gentlemanly and good man John A. Appleton, who was so highly respected and lived so long at Clifton.

South street, West New Brighton.
 " " New Brighton.

The last named of these could be called Ferry street, as it leads to the ferry at St. George.

Prospect avenue, New Brighton.
 " " Tottenville.

The last mentioned could be called after the old Micheau family. We copy the following from Clute's History: "The first of the name, Paul, was sheriff in 1736, and member of the Colonial Assembly from 1748 to 1751; his son Paul, however, appears to have been a greater favorite with the people of the county; he was chosen to the Provincial Congress in 1775-6; Connty Clerk for 20 years from 1761; County Judge for 11 years from 1786, and State Senator from 1789 to 1792. His son Paul J. was Member of Assembly 1798-1802-3, and Benjamin, County Treasurer in 1787. There was never a more popular or influential family in the county, but they have all disappeared. They were residents of Westfield."

Prospect street leads from the Turnpike to Howard avenue, on Grymes' Hill.
 Prospect street joins Morning Star road, Port Richmond.
 Prospect street joins Clove road, West New Brighton.
 Prospect street joins the Richmond road at Stapleton.

The second of these might be called Star street, and the third Curtis street, after Geo. Wm. Curtis. Neither of them has a prospect, whereas from the Prospect street leading from the Turnpike there is a truly fine view. Prospect street, Stapleton, could be called Shore street. It will be between the present Beach and Sand streets, and close to Wave street.

Union avenue, Mariner's Harbor.
 " " crosses the Turnpike near Chelsea Heights.

The old name for the last mentioned avenue was Chelsea road, and it should be restored.

Madison avenue, New Brighton,
 " " joins Post avenue, Port
 Richmond,

The last mentioned might be called Jefferson
 avenue, after the President just before
 Madison. We have a Monroe avenue

Church street, Tottenville.
 " " Port Richmond,
 " " New Brighton.

The second might be called Brownlee
 street, after Dr. James Brownlee, so long
 pastor of the old Dutch Church, nearby.

Sand street, Stapleton.
 " " Mariners' Harbor.

The last might be called Mariner street.

Water street, Stapleton,
 " " West New Brighton.

The first mentioned might be called Staple-
 ton street. It leads through the center of
 of the village, by the side of Washington
 square.

Simonson avenue Mariners' Harbor.
 " " Clifton.

The last might be called Concord avenue,
 because it leads to the Concord Downs and
 Concord Village. Or, if the first name is to
 be changed, it might be called Quarry street,
 because it leads to the Old Place road, near
 the oldest trap-rock quarry on the Island.

Among the other names that are duplicated
 are:

Sherman avenue, New Brighton.
 " " joins the Morning Star
 road, Port Richmond.
 Elizabeth street, Port Richmond.
 " " West New Brighton.
 " " Stapleton.
 Brook street, Stapleton.
 " " New Brighton.
 Ann street, Port Richmond.
 " " West New Brighton
 Franklin avenue, New Brighton,
 " " Grant City.

Thompson street, Stapleton.
 " " Grant City.
 Egbert avenue, West New Brighton.
 " " near Egbertville.

This list includes part only of the dupli-
 cated names and, as it has been made from
 an old atlas, perhaps some of the names men-
 tioned have already been changed by the
 authorities.

Respectfully submitted,

WILLIAM T. DAVIS'

II.

New Brighton N. Y Dec. 27, 1901.

*Dr. Arthur Hollick, Secretary Natural Science
 Association of Staten Island.*

Dear Sir:—Your letter of the 4th inst. has
 been brought by me to the attention of the
 councilmen and alderman representing this
 borough, and the necessity of changing names
 of streets in cases where the names have
 been duplicated and also in some other cases,
 was apparent to them. They said however,
 that as yet nothing had been done in regard
 to the matter, and suggested that it would
 undoubtedly, assist them greatly if you would
 send to me for their use any suggestions that
 your association might make with regard to
 changes to be made.

One of the newspapers has taken an inter-
 est in the matter and is inclined I think, to
 endeavor to get from the citizens at large
 suggestions as to names and changes.

I should be greatly obliged to you if you
 would send me a report of such suggestions
 as your association has to make, in order that
 I may communicate them to the proper au-
 thorities.

The recently announced decision of the
 post office department to establish the free
 delivery system for Port Richmond Staple-
 ton and Rosebank next spring, affords an
 additional reason for the proper naming of
 our streets. Very truly,

GEORGE CROMWELL.

President of the Borough.

III.

New Brighton, N. Y., Jan. 23, 1901.

*Dr. Arthur Hollick, Secretary Natural Science
Association of Staten Island.*

Dear Sir:—I am in receipt this morning
of your favor of the 29th ult., respecting the
progress being made by the Natural Science
Association in preparing a list of new names

for the streets of this borough. There is no
hurry whatever about sending in the list to
me, but as soon as you feel satisfied with it I
will be glad to have it and will call it to the
attention of the members of the local Board.

Very truly,

GEORGE CROMWELL,

President of the Borough.

JAN 22 1902

15,850.

PROCEEDINGS

OF THE

NATURAL SCIENCE ASSOCIATION

OF STATEN ISLAND.

Vol. VIII. No. 5.

T APRIL 13th, 1901.

The regular meeting of the Association was held at the Staten Island Academy, with the president in the chair.

The committee on re-naming of streets and highways made a further report of progress and submitted a complete list of all street, avenue and road names used on the Island, with duplications partially checked off.

Mr. Frederick E. Partington and Mr. Percy R King, New Brighton, were elected active members.

Mr. Wm. T. Davis read the following paper on

OLD STATEN ISLAND SCIENTIFIC, HISTORICAL AND LITERARY ASSOCIATIONS :

We have seen in Mr. Morris' paper on "The Tompkins Lyceum," printed in our Proceedings for June 9th, 1900, that provision was made in the by-laws for a curator of natural history, who was to "have control over the arrangement and exhibition of all the curiosities and specimens in Natural History, presented to or deposited with the Lyceum." The Lyceum flourished in 1842 and for several succeeding years.

The following extract from the *Richmond County Gazette*, for June 4th, 1862, shows that at least one other attempt was made to establish a scientific society on the Island:

"A Meeting of Gentlemen friendly to the organization of a Scientific Association on Staten Island, was held at St. Julien Hotel on Saturday, the 31st day of May last of which

Albert O. Wilcox, Esq., was chosen Chairman, and Doctor T. W. Donovan, Secretary. The character and purposes of the Association having been explained, and a plan of organization submitted, the further consideration of the subject was postponed, and the following resolution adopted :

Resolved, That this meeting adjourn, to meet at the St. Julien Hotel, Tompkinsville, on Saturday, the 7th of June next, at 4.30 p. m., at which time and place all gentlemen friendly to the proposed Association and wishing to become members of the same are invited to attend."

The following notices copied from old newspapers show the existence on the Island of various other kindred associations :

"Public Library Meeting. At a large and respectable meeting of the citizens of Factoryville and its vicinity held at the Shakspeare Hotel on Wednesday evening, the 12th inst., for the purpose of establishing a Public Library, it was Resolved, that this meeting vote a general invitation to all those who feel friendly to the cause to meet at this house on the evening of the 21st inst, at 7 o'clock—Resolved, that the meeting adjourn to meet on the evening of the 21st inst, at 7 o'clock.

G W MATSALL, President.

N. S. Burger
D. V. N. Mersereau, } Secretaries.
Factoryville, Feb'y 13th, 1834."

Richmond Co. Free Press, Feb'y 29, 1834.

"The Young Peoples Literary Association of Tompkinsville" is mentioned in the *Sepoy* for March 5th, 1859. In the same journal for March 12th, 1859, occurs the following:

"Rev Henry Ward Beecher will deliver his Lecture: "The Burdens of Society," before the Staten Island Historical Society, in the Trinity Methodist Episcopal Church, North Shore (Factoryville), on Thursday evening, March 17th. Tickets (25 cents each) may be procured of either of the following gentlemen:—Nathan Barrett, George William Curtis, Charles Windsor, Theodore Parkman and Ab'm C. Wood—Also from Jacob B. Wood, Tompkinsville; Webley I. Edwards, Richmond; L. W. Goddard, New Brighton, or 17 William Street, New York, and at the door. Doors will be opened at 6½ o'clock. Lecture to commence at 7½ o'clock.

Nathan Barrett,
George William Curtis,
Charles Windsor,
Theodore Parkman,
George Tudor,
Ab'm C. Wood,

Lecture Committee.

North Shore, March 8th, 1859."

The Staten Island Horticultural Society that flourished in 1864, seems to have been largely a literary society. Before it Mr R. J. deCordova delivered his "amusing lecture upon Courtship and Marriage" (*Richmond Co. Gazette*, Aug. 10th, 1864); Mr. Thomas Dermot gave readings from Shakspeare (*Richmond Co. Gazette*, Aug 31st, 1864) and Mr John W. Carrington recited the poems "The Blessing of the Twelve Tribes," "The Old Chaise" and "Barbara Fleechy."

In 1866 there was a Richmond Co. Agricultural Society, (*Richmond Co. Gazette*, May 9th, 1866.) The writer has a diploma awarded to John C. Thompson in September 1868, "for best Bush Early Rose Potatoes."

From the foregoing it will be seen that at least two attempts were made in the past to encourage the study of natural history on the Island by means of associations, and also that there were other societies of kindred purposes. It seems a little remarkable therefore, that so few facts regarding the natural

history of the Island were recorded before the advent of our present Natural Science Association.

Dr. Arthur Hollick read the following

NOTES ON SOME STATEN ISLAND BIRDS

Lanius borealis Vieill.—On March 17th of the present year, while walking along Richmond Turnpike, near DeJonges' paper factory. I saw two birds apparently fighting, but in a few moments the larger one had grasped the other in its claws and was flying away. The victor was much too small for a hawk, so I was interested to know what kind of a bird it could be. Finally it fled across the road, not more than twenty feet away, and lit in a tree close by, with its victim still in its claws. It proved to be a northern shrike, or butcher-bird, which had captured a blue-bird.

So far as I am aware this is the first record of this species having been seen on Staten Island, although it ranges both north and south of here and breeds in this latitude.

Zamelodia ludoviciana (Linn.)—On May 13th, 1900, a specimen of the rose-breasted grosbeak was seen at Sandy Brook. This species also has not before been reported from Staten Island, although we are within its breeding range. The date on which it was observed would indicate that it probably nested here.

Syrnium nebulosum (Forst.)—In our Proceedings for April 11th, 1891, may be found a note on a nest of the barred owl in the woods between Willow Brook and Bull's Head. On each succeeding year up to and including 1898 the nest was found occupied and the fact was recorded at our April meeting of each year. In 1899 the birds failed to appear for the first time and they were absent in 1900. It was reported to me that a specimen of the barred owl was shot in that locality in 1899, which probably accounts for the break at this date.

On March 31st of this year the tree in which the nest had been made for so many years was found to have been cut down, so that this interesting chapter in our local natural history may be considered as closed. Fortunately we have a set of the eggs in our collection.

Since the above memoranda were prepared I have received from Mr. Wm. T. Davis the following additional notes :

Butcher-birds have been seen by me as follows:

Jan. 31st, 1886—Near Bull's Head.

Dec. 19th, 1886—Near Four Corners.

Jan. 1st, 1897—In Moravian Cemetery. In company with Mr. Walter C. Kerr I watched the bird for some time.

Feb. 22nd, 1897—With Mr. Thos Craig

and Mr F. F. Hunt, at Mineral Spring near New Springville The bird was singing from the top of a tree, the song resembling that of the cat bird.

Rose-breasted Grosbeak—On May 1st, 1892, one of these birds was seen in a small cherry tree near the highest point of the Island. The bird was pulling the blossoms and nipping the young cherry or ovary. The ground beneath the tree was quite strewn with the petals

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PROCEEDINGS

OF THE

NATURAL SCIENCE ASSOCIATION

OF STATEN ISLAND.

VOL. VIII. No. 6.

T MAY 11th, 1901.

An informal meeting of the Association was held at the Staten Island Academy.

The following review was read by the Secretary :

RECENT LITERATURE RELATING TO STATEN ISLAND.

Clays of New York: Their Properties and Uses—Heinrich Ries, Bull. N. Y. State Museum, No. 35, Vol. 7 (June 1900), 8 vo., cloth, pp. 489-944, pls. 1-140 and map.

This is in general a complete scientific and technical, up to date dissertation, upon the clays of New York State, giving the geographic and geologic distribution of all the clay workings within the limits of the State; manner of quarrying; methods employed in manufacturing the various articles; analyses of raw material; tests of finished products, etc

In it Staten Island receives a large share of attention, both in the text and in the illustrations. Plate 1 (Frontispiece) and Pl. 81 represent terra cotta vases made at the factory of B. Kreischer's Sons, Kreischerville, and Pl. 78 is a view of Barnard College, New York, showing the terra cotta trimmings from the same factory.—Views of the interior of the factory are given on Plates 79, 80, 106, 107, 108, 109 and 111, while the exterior, on the water front, is shown on Pl. 110.

Two of the clay pits are represented on Plates 17 and 105 and figures of a number of our Cretaceous fossil leaves on Plates 18 and 19, as follows:

Pl. 18. *Rhamnus Rossmassleri* Ung. Tottenville.

Pterospermites modestus Lesq. Tottenville.

Laurus plutonia Heer. Tottenville.

Protacoides daphnogenoides Heer. Tottenville.

Tricalycites papyraceus Newb. Tottenville.

Eucalyptus Geinitzi Heer. Tottenville.

Myrsine elongata Newb. Arrochar.

Myrica longa Newb. Arrochar.

Thinnfeldia Lesquereuxiana Heer. Princes Bay.

Pl. 19. *Protacoides daphnogenoides* Heer. Tottenville.

Laurus plutonia Heer. Tottenville.

Liriodendropsis simplex Newb. Tottenville.

Liriodendropsis simplex Newb. Princes Bay.

Moriconia cyclotoxon Deb and Etts. Princes Bay.

Populus apiculata Newb. (?) Arrochar.

These are of particular interest to us, as the specimens figured are all in our museum; they were collected and identified by members of our Association and were previously described in our Proceedings or in the Transactions or Annals of the New York Academy of Sciences.

The structure and geologic age of the clay

deposits at Kreischerville and Green Ridge are described on pp 607-611, including the following fact not before recorded locally:

"[sponge] Spicules have been observed in the fire clay at Kreischerville * * * In the Kaolin were discovered a number of diatoms, which Dr. Ward informs me are either *Cocconeis placentula* Ehr., or *C. pediculus* Ehr. Their occurrence is also of great interest, as these Kaolins are known to be middle Cretaceous beyond doubt."

The following sections are given on p. 608:

" Boring at Kreischer's factory :	
Sand and soil	30 ft.
Blue clay	90 ft.
White sand	2 ft
Sand and clay alternating	78 ft.
Total thickness	200 ft."

Also :

" The following record of a well bored for Bachmann's brewery at Annadale, S. I. * * * At a depth of 200 feet a bed of yellow gravel containing shells was struck. The gravel was 36 feet in thickness and beneath it was a bed of clay 10 feet thick. The latter was of a white and blue color and was said to resemble a fine pottery clay."

As this record appeared to be erroneous, either in regard to the locality or the name of the brewery, I endeavored to obtain some more definite information from the author, but as he had merely received it second-hand the result of my effort was not satisfactory. Bachmann's brewery is at Clifton.

On p 610 is the following analysis of so-called " Kaolin " from Campell's pit :

" Silicic acid and sand	92.70
Al 2 O 3 and Fe 2 O 3	5.70
H 2 O	.70
K 2 O	.35
	99.45"

On pp 742-43, under the description of building brick, are mentioned McCabe's yard at Green Ridge ; Wood & Keenan's on Arthur Kill, and the Anderson pressed brick factory at Kreischerville.

On pp. 759 - 60 is mentioned the clay quarried near Rossville (" Roseville " in the Report) by T. Ryan, with tests for shrinkage, vitrifi-

cation, tensile strength, etc. The composition is given as :

" Silica	57.00
Alumina	29.20
Ferric oxid	4.80
Lime	.65
Magnesia	31
Alkalies	1 80
Water	6.10"

On pp. 763 - 64, under descriptions of the terra cotta industry, Kreischer's factory is given a prominent place and on pp. 788 - 90, under the subject of fire clays, is a more detailed description of the Kreischerville beds, which are stated to be the only ones at the present time, in New York State, from which fire clays are mined. — Shrinkage, tensile strength and refractoriness are discussed and the following analysis given of clay from a pit opened in 1897 near Killmeyer's hotel :

" Silica	47 40
Alumina	39.01
Ferric oxid	.15
Lime	trace
Magnesia	"
Alkalies	"
Water	14.10
	100.66"

This was found to be a white and highly refractory clay.

In addition to the above, mechanical analyses are given, showing the amounts of clay, silt and sand in several samples of clay from the same locality.

On p. 872, in a table of analyses of fire clays, No. 29, from Kreischerville, is given as follows :

" Silica	64 28
Alumina	24.76
Ferric oxid	.83
Lime	73
Magnesia	trace
Alkalies	2.35"

Dr. Arthur Hollick exhibited a specimen of and read the following note on

A RECENTLY INTRODUCED GRASS.

Festuca capillata Lam — On May 27, 1900, while walking across a field near Egbertville.

my attention was attracted to a single dense tuft of fine grass, with numerous, slender, fruiting spikelets, which was conspicuous in comparison with the coarser grasses which surrounded it.—The genus was readily determined to be *Festuca*, but the species was clearly different from any with which I was familiar, nor was I able to identify it subsequently, so it was submitted to Mr. Geo. V. Nash, of the New York Botanical Garden, to whom I am indebted for its' identification.

It is a European species, recently introduced, which is becoming naturalized in the Eastern United States. It had apparently not been reported at the time Britton & Brown's Illustrated Flora was first prepared

for publication, as it is not included except in the Appendix to that work.

Its' discovery here adds another species to our local flora.

MINOR NOTES.

Mr. Samuel M. Dix presented a portion of a pegmatite granite boulder, found at Stapleton, similar to the granite outcrop at Tompkinsville, but not common as drift material on the Island.

Dr. Hollick presented a specimen of limonite, from the old Todt Hill mines, representing a sample of a quantity recently collected for the New York State mineral exhibit at the Pan-American Exposition.

PROCEEDINGS

OF THE

NATURAL SCIENCE ASSOCIATION

OF STATEN ISLAND.

VOL. VIII. No. 7.

T JUNE 8th, 1901.

The regular meeting of the Association was held at the Staten Island Academy.

In the absence of the president Mr. Howard R. Bayne was elected chairman *pro-tem*.

The following memorandum from Mr. Walter C. Kerr was read:

SWARMING OF *ALLORHINA NITIDA*.

On Saturday June 7th, 1900, my attention was attracted to a swarm of what seemed to be bumble bees, around a bed of cannas in the grounds of the Richmond County Country Club at Dongan Hills. On investigation however they proved to be a swarm of beetles (*Allorhina nitida*). They were clustered about the cannas, some resting on the stems, others crawling down between the leaves and the stems, while some were burrowing more or less in the ground. Many were flying about, causing a loud buzzing, which quite imitated that of a swarm of bees. The number was not estimated but there were probably several hundred. Some were captured and given to Mr. Wm. T. Davis, who informed me that the swarming of another beetle of a closely allied genus had been before reported.

The following reviews were read by the Secretary:

RECENT LITERATURE RELATING TO STATEN ISLAND.

- I. *The Serpentine of Manhattan Island and Vicinity and Their Accompanying Minerals*. D. H. Newland. School of Mines Quarterly, xxii (April 1901) 307-317.

In this paper there is a separate article on the Staten Island serpentine, occupying pages 309-316, with figures 1 and 2, showing the microscopic structure of specimens from Martling's Pond and Pavillion Hill respectively.

In discussing the general characters of the rock the author says that typical specimens, on superficial examination, show little else than serpentine, with a few crystals or bunches of chromite and scales of talc and chlorite.

The fibrous habit is noted from the Pavillion Hill locality and the replacement of serpentine by amphibole crystals, which causes the rock to be more resistant to erosion and weathering and is usually marked by sharper contours in the topography, as indicated along the eastern and southern borders of the area. The lamination and jointing of the rock are mentioned and also the fact of the joint surfaces being slickensided as the result of pressure, which the author thinks may be due to some extent to the increase in bulk by alteration of the original minerals.

Microscopic examination of a specimen from the excavation made for the abandoned Germania Brewery at Four Corners show the rock to be largely composed of amphibole more or less serpentinized. Pyroxene, chromite, magnetite, chlorite and talc were also found.

Examination of the specimen from the vicinity of Martling's Pond showed in addition the presence of olivine and the Pavillion Hill specimen was found to be a dark, massive, completely altered serpentine, containing talc, chromite and magnetite, which the author con-

siders "to have been derived largely from amphibole and olivine."

He further says: "Talc schist and chlorite schist are developed along with the tremolite rock and their association is probably a genetic one * * *. The occurrence of these secondary phases of alteration on the border of the area naturally suggests an igneous contact." This latter hint is probably meant to refer to the presence of granite, which is known to occupy a position close to the eastern border, at the Tompkinsville station of the Rapid Transit R. R.

Following is given as a chemical analysis of a specimen from Four Corners:

Si O 2	. . . . .	36.72
Mg O	. . . . .	29.09
Al 2 O 3	. . . . .	1.06
Ca O	. . . . .	9.95
Fe 2 O 3	. . . . .	6.59
Fe O	. . . . .	1.53
Cr O 3	. . . . .	.49
C O 2	. . . . .	.52
H 2 O below 110 C	∴	14.02
H 2 O above 110 C		14.50
		<hr/>
		99.97

From the facts the author apparently concludes that our serpentine must be regarded as an altered igneous rock.

II. *Discovery of a Mastodon's Tooth and the Remains of a Boreal Vegetation in a Swamp on Staten Island, N. Y.*

Arthur Hollick, Ann. N. Y. Acad. Sci., xiv. (1901) 67, 68.

This is practically an elaboration of the papers printed in our Proceedings for Oct. 14, 1899 and Feb. 10 1900. It refers to the mastodon's molar found in the swamp in Moravian Cemetery.

MINOR NOTES.

Dr. Arthur Hollick exhibited specimens of leaves of plantain, sweet clover and other herbaceous plants bleached to a greater or less extent, presumably by the action of sulphur vapors from the copper works on Constable Hook during the recent wet weather. The leaves were collected on Kissel Ave. West New Brighton, where all the vegetation was more or less affected.

Mr C. A. Ingalls exhibited a series of photographs of Staten Island scenery, part mounted on cards and part prepared in the form of lantern slides.

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PROCEEDINGS

OF THE

NATURAL SCIENCE ASSOCIATION

OF STATEN ISLAND.

VOL. VIII. No. 8.

OCTOBER 12th, 1901.

The regular meeting of the Association was held at the Staten Island Academy.

In the absence of the president Mr. A. K. Johnston was elected chairman *pro tem*.

The secretary called attention to the death, since the last meeting, of Mr. Jere. V. Wright, who lost his life in the sinking of the steamboat Northfield, on June 14th.

Mr. J. Blake Hillyer also referred to Mr. Wright as one of the most enthusiastic supporters of the Association, who took a great interest in its work, attending the meetings, etc., but not taking an active part in the proceedings.

On motion the secretary was instructed to prepare a suitable minute, embodying the above facts, and also to record the deep regret of the Association at the loss which it has sustained in the death of Mr. Wright.

Dr. Arthur Hollick exhibited and read the following note on

TWO STATEN ISLAND SPONGES

On September 8, 1899, after a severe storm, the beach between Great Kills and Princes Bay, especially in the vicinity of the Woods of Arden, was thickly strewn with two species of sponges, in all stages of wear and tear, from those which had been freshly cast up to others which had been rolled along the beach for a sufficient time to convert them into smooth rounded masses. These latter were so abundant in places that they formed ac-

cumulations like the rounded cobble stones and pebbles of the beach shingle, and it was difficult to realize that they could have been derived from the open branching sponges. Specimens were sent to Professor R. P. Whitfield, of the American Museum of Natural History, who has kindly identified the two species represented as *Microciona prolifera* Ellis and Solander, and *Hircinia* sp? (probably *acula*). The former is bright red when fresh, but dries to a dull brown color, as seen in these specimens.

Dr. Hollick also read the following:

GRAPE LEAVES BLIGHTED BY ACID FUMES.

At our meeting last June I exhibited specimens of leaves of several plants in which the tissue was more or less destroyed and the green coloring matter bleached out—presumably by the action of acid vapors from the factories on the New Jersey shore of the Kills.

Subsequently one of our residents submitted to me these specimens of grape leaves, showing the same effects, although the vines were growing within a green house. In order to make certain that a fungus was not responsible I turned them over to Professor I. M. Underwood of Columbia University who kindly examined them, and, while he would not assign any reason for the destruction, stated positively that there was no indication of a fungus growth. A chemical examination would probably be necessary in order to de-

termine the exact nature of the destroying agency and to fix the responsibility.

The secretary read the following reviews of

RECENT LITERATURE RELATING TO STATEN ISLAND.

I. *Serpentines of Manhattan Island and Vicinity and Their Accompanying Minerals. [Part II.]* D. H. Newland, School of Mines Quarterly, xxii. (July, 1901) 399-410; illust. in text.

This is the concluding part of the paper which was reviewed in the June number of our Proceedings. Under the discussion of the mineralogy of the serpentines there are numerous references to Staten Island—most of them from works or articles with which we are familiar and many of which have appeared in our proceedings.

In regard to the origin of the serpentines the author concludes that the original rocks from which they were derived were of igneous character, while in age they are more recent than the upper members of the Lower Silurian. These conclusions are of considerable

interest to us, as those who have studied the serpentines of Staten Island most extensively were of the opinion that they represented metamorphosed sediments and that their age was pre-Silurian.

II. *Life in New York and Brooklyn Several Million Years Ago.* Gustavus Myer. New York Herald, June 9, 1901.

This is a newspaper reporter's attempt to write an account of the probable conditions which prevailed in Greater New York and vicinity during the Cretaceous and subsequent periods based upon a number of facts furnished by a member of our Association.

The sequence of events is rather mixed in the text and a somewhat pretentious picture occupies the centre of the page, in which a Cretaceous dinosaur and a Quaternary mammoth are wandering together through a redwood forest.

Two plates representing our fossil leaves collected at Tottenville and Kreischerville, are also included

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PROCEEDINGS

OF THE

NATURAL SCIENCE ASSOCIATION

OF STATEN ISLAND.

VOL. VIII. No. 9.

NOVEMBER 9th, 1901.

The Twenty first Annual meeting of the Association was held at the Staten Island Academy, the president, Mr. Lester W. Clark, in the chair.

Reports of officers of the past year were read and approved as follows:

Secretary.

Number of members on roll at date of last Annual meeting.....	76
Elected	3
Resigned	8
Deceased, ,	2
Dropped from rolls for non payment of dues	2
Leaving on roll at date	67

Treasurer:

Balance on hand at date of last Annual meeting.....	\$489.90
Receipts.....	203 35
	<u>\$693.25</u>
Disbursements.....	\$312.98
Balance on hand	<u>\$380.27</u>

Curator:

Number of specimens donated to museum	101
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Classified as

Geology and Paleontology,....	90
Botany.....	2
Zoology.....	9

Additions to Library:

By Exchange—Bound Volumes, Pamphlets, Maps and other publications.	211
Subscription.....	57
Total,	<u>268</u>
Volumes bound during the year.....	130

The election of officers for the ensuing year resulted as follows:

President, Lester W. Clark.
Secretary, Arthur Hollick.
Treasurer, J. Blake Hillyer.
Curator, Chas. A. Ingalls
Trustee, Wm. T. Davis.

On motion it was resolved that the regular meeting of the Association shall be held hereafter on the second Saturday evening of each month from October to May inclusive.

The unusual disbursements during the year were stated to be due to the binding of many volumes of periodicals, the purchase of quantities of boxes for specimens and board covers for pamphlets and other details connected with the proper arrangement and display of the library and museum

Mr Wm. G. Willcox, of West New Brighton, and Mr. J. Harvey Bostwick, of Grymes Hill, Stapleton, were elected members

A short course of popular lectures on scientific subjects was planned for the coming season, the details being left to the Executive Committee who will report upon them at the next meeting.

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PROCEEDINGS

OF THE

NATURAL SCIENCE ASSOCIATION

OF STATEN ISLAND,

VOL. VIII. No. 10.

DECEMBER 14th, 1901.

The regular meeting of the Association was held at the residence of Mr. Lester W. Clark, New Brighton, with the president in the chair.

The following were elected active members:

N. B. Day, New Brighton.
John De Morgan, New Brighton.
Norman S. Walker, New Brighton.
Wm. Y. Wemple, New Brighton
Walter Durbrow, West New Brighton.
W. B. Hayward, Tompkinsville.
J. P. Lough, Tompkinsville,

The Secretary presented the following paper:

LIST OF FUNGI, COLLECTED AT TOTTEVILLE,
OCT. 4th., 1890.

The specimens listed were collected on the occasion of a field day excursion by the members of the Torrey Botanical Club, and subsequently transmitted by Mrs. N. L. Britton to Dr. S. E. Jelliffe, to whom we are indebted for the identifications.

Dr. L. M. Underwood, of Columbia University, kindly attended to the final revision and systematic arrangement of the species

BASIDIOMYCETES.

Armillaria mellea Vahl.
Cantharellus cinnabarinus Schw.
Clitocybe laccata Scop.
Coprinus comatus Fr.
Hypholoma sublateritium Scheaff.
Russula emetica Fr.
Schizophyllum commune Fr.*
Tricholoma personatum Fr.
Lensites betulina (L.) Fr.*
Polyporus oblectans Berk. (*P. splendens* Pk.)
Strobilomyces strobilaceus B. & C.
Boletus chrysenteron Fr.

Irpex fuscescens Schw. (*I. cinnamomeas* Fr.)
Thelephora Schweinitzii Pk.
Stereum hirsutum (W.) Fr.
" *spadicium* Fr.
" *versicolor* (Schw. Fr.)
Clavaria argillacea Fr.
" *inaequalis* Mull.
" *pulchra* Pk.
Tremella mesenterica Retz.
Lycoperdon pyriforme Scheaff.
" *Wrightii* Bol
Scleroderma Bovista Fr.
" *Gaster* Fr.
" *vulgare* Hornem. *
Crucibulum vulgare Tul
Puccinia argentata (Schultz) Wint.
" *graminis* Pers.
Uromyces lespedezae (Schw.) Pk.
Ustilago maydis (D. C.) Wint. (*U. Zeae* (Berkm.) Magn.)
Coleosporium solidaginis (Schw.) Thum.
(*C. sonchi-arvensis* (P.) Lev.

ASCOMYCETES.

Leotia lubrica (Scop.) Pers.
Rhytisma solidaginis Schw.
" *acerinum* (Pers.) Fr.

A former list was published as special No. 11 of our Proceedings, in August 1890, which included the names of all the fungi in our collection at that time.

Those above marked with an asterisk * are also included in this previous list.

MINOR NOTES.

Dr. Arthur Hollick exhibited a collection of petrified wood obtained from Arizona, California and the Yellowstone National Park. The specimens comprised both exogenous and endogenous wood and showed all stages from partial to complete silicification.

PROCEEDINGS

OF THE

NATURAL SCIENCE ASSOCIATION

OF STATEN ISLAND,

VOL. VIII. No. II.

JANUARY 11th, 1902.

The regular meeting of the Association was held at the residence of Dr. Arthur Hollick, New Brighton.

In the absence of the president Mr. J. Blake Hillyer was elected chairman *pro tem*.

The secretary, in behalf of the executive committee, gave the outline of a program for three public lectures to be delivered at the Staten Island Academy in the near future.

Mr. Wm. T. Davis exhibited three photographs of grave stones from the old Cruser burying ground at 'The Cove,' West New Brighton, and read the following paper:

HOMESTEAD GRAVES.

In our Proceedings for December 1889 and October 1890, issued as Special No. 9, under the heading "Homestead Graves" an account was given of such family burying grounds as were found about the old houses and farms of the Island. Since those articles were published several more grave stones and another burying plot have been discovered, which may be added to the previous records.

In the account of the Cruser burying ground, near "The Cove," West New Brighton, only the inscriptions on two stones found in an old vault, were given. The other three stones, which were supposed to have been buried about the premises, have recently been unearthed, and I am indebted to Mr Alexander S. Rowland for photographs of them. The

inscriptions are as follows:

(1.)

Hier onder rust her lyk van Gerrit Kroese overleeden den Xlen Mey A. D. MDCCLX. oudt zynde LVII Jaren en XI Maanden.

(2.)

Hier onder rust her lyk van Cornelia Kroese Doghter van Gerrit Kroese overleeden den XVIIIen Mey A. D. MDCCLX oudt zynde XIX Jaaren.

(3.)

Here lies the Body of Closha, the widow of Garret Cruser, who de-
ceas'd March ye 21st Anno Domini,
1787, In the 77 Year of her Age.

Cut by Abner Stewart.

In the private burying ground situated in a little clump of trees on a hill-side near the shore at Princes Bay, five more stones have been found at a short distance from those before recorded. They were concealed by a tangle of bushes and vines at the time of the first visit, and their presence was not discovered until later. The inscriptions are as follows:

(1.)

Here lies ye Body of Liut Jacob Spragg, Aged 51 years, Dec'd Nov'r.
ye 14. 1745.

(2.)

Here lies ye Boyd of Henry Butler
son of Henry and Belicha Butler,
who departed this life October 22nd,
1786, Aged 33 years and 4 months,

God my Redeemer lives

And ever from the skies

Looks down and watches all my dust
Till he shall bid it rise.

(3)

In Memory of James the son of
Henry Butler, who Dep'd this Life
Oct'r. 22, 1786, Aged 27 years.

(4.)

Here lies the Body of Nathaniel
Butler, son of Henry and Belicha
Butler, who departed this life Jan-
uary 22nd 1815. Aged 46 years, 10
months and 1 day.

My friends I leave to weep and mourn

While in the silent grave I sleep

Prepare for death for you must die

And be Intom'd as well as I

(5)

Here Lies the Body of Henry Butler
who Departed this Life the 24th of
April, 1780, Aged 54 years.

By scratching away the dead leaves lying
among the thick growth of briars in the little
woodland burying ground situated between
Richmond and New Springville, two small
home made grave stones were found. One
of them was badly broken and indistinctly
dated 1755 or possibly 1750. The other
reads:

Here Lies the Body of Nicholas
Dupuy; Jun; Dec'd March ye 4.
1753.

The homestead burying ground not pre-
viously mentioned in these records, is situated
but a short distance from St Paul's church on

the Amboy road Tottenville. It belongs to
the Wood family, and is planted with rose
bushes and old fashioned flowers. Alto-
gether it is one of the most pleasing private
burying grounds on the Island, but it con-
tains no inscribed stones

Mr. Davis also exhibited a complete series
of the frogs and toads thus far found on the
Island, preserved in formalin, together with a
specimen of the Swamp Tree Frog from Little
Falls, N. J., and read the following note:
AN ADDITION TO THE LIST OF STATEN ISLAND
FROGS.

In the list of Reptiles and Batrachians of the
Island, published in our Proceedings for Oct.
1884, as Extra No. 1. the names of nine frogs
and toads are given. Curiously enough at
that time the bull frog (*Rana catesbeiana*)
could not be added to the list, though Mr.
E. F. Neilson and I had searched carefully for
it. It certainly must have been very scarce
if present at all in Clove Valley. In recent
years, however, I have seen and heard in-
dividuals in the Clove Valley, and in Van
Wagenen's pond, near the Fingerboard road,
and at other localities. The specimen I have
to exhibit was given to me by Mr. Ira K.
Morris, and was captured on the south side
of the Island by a friend of his

The only additional frog likely to be found
on the Island is the Swamp Tree Frog,
(*Chorophilus triseriatus*) which I have collect-
ed at Little Falls, New Jersey.

MINOR NOTS.

Mr. Samuel Henshaw exhibited a section
of a pear tree trunk from West New Brighton,
showing borings made by the larvæ of an in-
sect two living specimens of which were in-
cluded. These were identified by Mr. Davis
as the larvæ of the Leopard Moth, (*Zeuzera
Esculi* Linn.) a memorandum upon which
was published in our Proceedings for March
18th, 1893.

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PROCEEDINGS

OF THE

NATURAL SCIENCE ASSOCIATION

OF STATEN ISLAND,

VOL. VIII. No. 12.

FEBRUARY 8th, 1902.

The regular meeting of the Association was held at the residence of Mr. Fred F. Hunt, New Brighton. In the absence of the president Mr. J. Blake Hillyer was elected chairman *pro tem*.

Mr Wm R. Hillyer, New Brighton, was elected an active member.

Mr. Wm. T. Davis called attention to a movement, recently inaugurated by persons interested in plant life, designed to check and discourage the wholesale destruction to which vegetation in general is exposed by the wanton or thoughtless plucking and collecting of flowers and the breaking of shrubs and trees. New England botanists have formed a "Society for the Protection of Native Plants" and the New York Botanical Garden has received a "Fund for the Protection of Native Plants," the income from which is to be devoted to three prizes of \$50, \$30, and \$20, each, for the best essays upon the subject of the preservation of wild plants, including shrubs, herbs and trees.

Mr Davis then read the following

LOCAL NOTES ON VANISHING WILD FLOWERS.

The State of Connecticut has a law designed to protect its native flora. In the city of Boston there is a "Society for the Protection of Native Plants," and lately the New York Botanical Garden has been presented with a fund, the interest of which is to be used for the same admirable purpose. The preservation of living plants in their native haunts has naturally received much attention in botanical journals, and the daily press has also done its part in serving notice upon the public, that they who ruthlessly pluck, dig up or burn the wild plants, are doing the commun-

ity an injury. Of course in every locality the conditions are somewhat different. The plants that are in danger of extermination in one place may be abundant in another. For this reason Mrs. N. L. Britton, whose article on "Vanishing Wild Flowers," published in *Torrey* in August last, has suggested that some notes of a local character could be given for Staten Island.

The chief destroyers of our local flora seem to be:

1. Fire
2. Agriculture, building operations, and the wood chopper.
3. Cattle
4. Indiscriminate picking of flowers.

The crowds of passengers on the Staten Island boats on Sundays and holidays in warm weather, bear away such enormous bouquets, that the wonder grows that there are any flowers left alive except daisies and golden rods, whose floral display can hardly be reduced by the energy of even the most vigorous east side pic nic party.

The fern *Polypodium vulgare* though common enough northward, is rare on the Island, and is here a subject for protection. It once occurred in considerable abundance on the top of a flat rock near Four Corners, but a number of cows were turned into the wood and they speedily devoured the ferns along with much of the underbrush. The other stations for this fern, at Silver Lake, etc., have so often been burned over that it has been nearly exterminated. The burning of our woods year after year, has also destroyed most of the patches of Club-mosses, and some of the spe-

cies that were abundant a few years ago could now hardly be found.

The lilies, especially the Turk's cap (we have very few Canada lilies), seem to suffer chiefly from the individual intent upon making a bouquet the size of a bushel basket. Their own conspicuousness is their chief enemy, as it is with some other plants; when man is taken into account.

We have known of many little patches of orchids, such as *Tipularia* and the moccasin flower, that have been destroyed by fire, and we have seen localities picked clean of the flowers of the last named species. We once saw three children vying with one another as to who could collect the greatest number of moccasin flowers and the biggest bouquet of azaleas.

The wild columbine is nearly extinct on the Island, there being still a few plants at Tottenville. Probably all of the destroying agents mentioned helped in the reduction of its numbers.

The Hepaticas suffer much from the constant wood fires, and all of the flowers in sight are often plucked.

The erect Clematis (*C. ochroleuca*) on Todt Hill and on the sandy point of land at Watchogue, is one of the plants that should be saved in particular, for the reason that it is at present unknown elsewhere in the vicinity of New York. It is not reported from the whole State of New Jersey. The Country Club as tenant, and the president of our Borough as owner of the soil on Todt Hill, is each in a position to save it to the community.

The evergreen holly used to be abundant on the Island, and there were trees of good size, on Richnond hill. But, 'if I don't take it some one else will', was the motto of the neighbors, and every Christmas time saw it grow less. Until lately there were many little trees springing up on the hill, but last year the underbrush was cleared away and the ground burned over.

The flowering dog wood suffers from having many of its branches broken off in May and June, and lately some one cut most of

these trees from the woods on the westerly side of Silver Lake; land which will perhaps some day be included in the proposed park.

Trailing arbutus used to grow in abundance near Huguenot and Richmond Valley, but it has literally been carried away. In several instances it has been destroyed by fire as well. When one considers how difficult it is to make the arbutus grow, in fact no one has been entirely successful in transplanting it to any extent, it will be realized that it is easier for man to build a sky-scraping office building, or some other considerable monument of engineering skill, than it is to readjust the nicely balanced conditions of nature, when they have once been destroyed.

I have seen a swamp burn on our Island for a week, the result of a careless fire, and at the end of that time more damage had been wrought to nature than could be repaired in probably several centuries of growth and decay. What then is to be done to save our wild flowers and plants? The answer would seem to be that nothing can be done except in the way of educating popular opinion and taste.

No doubt one of the most effective ways of doing this would be to bring the matter to the notice of the teachers in the public schools, when the enormity of setting fire to the woods and of pulling up and indiscriminately picking all of the wild flowers could be explained to the children and thus teach them a reverence for things natural.

On motion Mr. Davis was requested to obtain further information in relation to the subject and to report at the next meeting any suggestions in regard to work which might be undertaken in order to assist or encourage the movement.

Mr. Davis also exhibited specimens and read the following memoranda:

TWO ADDITIONS TO THE LIST OF STATEN ISLAND PLANTS.

Hypochaeris radicata L. This composite is well established on the Island, having been found at three stations. In the grounds

of the S. R. Smith Infirmary it persists in spite of the mowing machine. It is also to be found on Todt Hill, and in a field near Egbertville it grows in great abundance.

An interesting habit of the plant is the closing of its flowers early in the afternoon, even if the sun is shining. I am indebted to Dr. N. L. Britton for verifying my identification of the specimens.

Taraxacum erythrospermum Andr. (Red-seeded Dandelion). The specimens of this plant exhibited were collected on the side of the Egbertville road near Egbertville. It has however been found growing in some abundance in the trap-rock quarry at Graniteville.

In the first locality it grows in the deep shade, but in the quarry it is associated with the Knawel and occupies, as that plant generally does, a dry exposed situation.

THE BAG OR BASKET WORM.

Mr. Fred F. Hunt referred to the injury to shade trees wrought in recent years by the "bag" or "basket worm" (*Thyridopteryx ephemeraeformis* Haworth) and exhibited specimens of the species in all stages of growth, together with its cocoons. These latter may be seen in great abundance this winter, suspended from the branches of many trees in the vicinity. Mr. Hunt suggested that some action might be taken by the Association to assist in abating or mitigating the nuisance by urging property owners to remove and destroy the cocoons now, while they may be readily seen, and thus prevent the eggs from hatching next Spring.

The following letter from Mr. Walter C. Kerr, relating to the matter was read :

New York Feb. 7, 1902

Fred F. Hunt, Esq., New Brighton, Staten Island, N. Y.

Dear Mr. Hunt :—Referring to our conversation this morning about the bag worm cocoon which so abundantly infests the trees on Staten Island this winter I would say that I most heartily approve of your suggestion that the Natural Science Association take

some move towards their destruction before Spring providing a practical method can be planned for effecting this.

I am quite sure that such moves are only worth making when they are efficient and reasonably complete. In this case completeness could not extend to the forests of the Island but there seems no good reason why it should not extend to all of the shade trees and other valuable trees well within the settled portions especially the trees which extend along the streets and lawns.

Doubtless personal effort is most effective, but I believe it to be too limited. In making such a move against the threatened plague of the coming season the following occurs to me :

1. Strong words of warning, put in language that will be understood and which will plainly state that these trees are threatened with destruction if this remarkable crop of cocoons is not handled now, should be put in the papers, not only once but repeated again and again, to keep it before the public and the papers should be requested to draw editorial attention to the articles.

2. A very simple cheap circular might be printed and by a special permit of the Post Office Department be placed in every mail box on the Island without addressing. This I think the Department would permit, although contrary to custom, because of its being for the public good. These circulars to be sent to each of the postmasters in packages with instructions how to deliver them.

On these circulars might be printed a small half tone cut showing just what the cocoon is, so that comparatively ignorant people will understand

3. Some practical means should be suggested for removing the cocoons, for obviously their removal must be accomplished by some means commensurate with their number and distance from the ground. Possibly by a sharp hooked knife attached to the end of a long stick which would reach most of the low trees to which these cocoons are chiefly

attached or possibly a wire in the end of a long pole, with the end bent over at an angle and hammered into a sharp V shape could be hooked over the cocoon in such a way as to easily pull it down.

4. Explicit instruction should be given that the cocoons when thus removed should be collected and burned.

5. Possibly it would be well for the Association to consult with the U. S. Department of Agriculture, Division of Entomology, or the nearest Agriculture Station of this Depart-

ment (which probably is at Cornell University) asking advice regarding the best methods.

In any event, I think whatever is done must be of such a nature as shall alarm the people as to the menace which these cocoons are to the shade trees and insure a practical mode of dealing with them.

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PROCEEDINGS

OF THE

NATURAL SCIENCE ASSOCIATION

OF STATEN ISLAND,

VOL. VIII. No. 13.

MARCH 8th, 1902.

The regular meeting of the Association was held at the residence of Mr. Chas. P. Benedict, West New Brighton. In the absence of the president Mr. Wm. T. Davis was elected chairman *pro tem*.

The secretary reported that arrangements had been made for two public lectures at the Staten Island Academy: the first on Wednesday, March 19, by Mr. Cornelius Van Brunt, on "Wild Flowers in and about Greater New York," and the second on Wednesday, April 9th, by Mr. E. B. Southwick, on "Our Insect Tenants."

The following were elected active members:

Wm. F. Fox, New Brighton.
 Wm. H. Mitchell, Port Richmond.
 Jas. V. Burkman, West New Brighton.
 L. H. Achilles, " " "
 Reade Benedict, " " "
 H. E. Heal, " " "

The secretary referred to the death, since the last meeting, of Mr. A. A. Yates, and stated that Mr. Yates had been practically the only person connected with our public school system on the Island who seemed to realize the importance of nature study, so that his death is a loss both to the community in general and to our Association in particular.

Mr. Wm. T. Davis also referred to the same matter and submitted the following memorandum, which was ordered spread upon the minutes and printed in the Proceedings;

Our late member Mr. Albertus Austin Yates, who

died after a brief illness at his home on Carey Ave., West New Brighton, on the 13th of February, was born in Kingston, New York, and came to Staten Island a number of years ago. For some time he was principal of the public school on Andros Ave., Mariners Harbor, and later was supervising deputy of seven of the smaller public schools, having his headquarters at New Dorp.

It was while living at Mariners Harbor that he became interested in nature study, and he exhibited considerable enthusiasm in the way of identifying all of the birds and trees in the vicinity of his home. In the winter of 1899-1900, the red cross-bill occurred in considerable numbers about New York, and Mr. Yates reported that he had seen several of the birds on the cones of a pine tree in the Moravian Cemetery. Their occurrence here was not however recorded at the time. In October, 1893, he reported having found a Carolina rail, dead, in the Clove Valley, and in fact, always, on his way from one school to another, he had an eye for the birds and the trees by the road side.

It is said that we can judge a man by the questions he asks and Mr. Yates was an adroit questioner, and quickly enough got to the bottom of the subject. He was also a kindly man and was always ready to put himself to considerable trouble, if necessary, in order to serve his friends.

Dr. Arthur Hollick suggested that some record should be made in regard to the destruction wrought by the recent storm, and read the following

NOTES ON THE ICE STORM OF FEB. 21ST.

On four previous occasions since the date of our organization, more than twenty years ago, we have suffered from storms sufficiently severe to make them matters of record in our Proceedings. The first was that of the great blizzard of March 12th-13th, 1888, the second and third the gales of August 24th and 29th,

1893, the fourth that of May 20, 1894.

On all of these occasions special attention was called to the injury wrought to vegetation, but it is doubtful if there has been, in the memory of anyone now living, such havoc and destruction in connection with our trees, as that which was caused by the ice storm of February 21st of this year. Similar storms have occurred nearly every winter, but never before did the accumulation of ice on the trees reach such magnitude or produce the disastrous results that ensued from this one.

The storm conditions began early in the morning with a fall of phenomenally large snow flakes, which turned to rain and finally to sleet. Every exposed object became gradually encased in a constantly increasing thickness of ice and finally, about nightfall, the overburdened trees began to give way. Nearly all lost a greater or less number of their branches or limbs, many had their tops broken off, others were split where forked and some were laid prostrate on the ground.

The general effect is known only too well to all of us, but perhaps all are not familiar with some of the details. For example, the actual weight of ice was probably unprecedented and fortunately a friend of mine made an experiment which will enable us to appreciate, at least approximately, what this amounted to. A section of a branch with its coating of ice was found to weigh $4\frac{1}{2}$ lbs. After the ice had melted the section weighed a fraction over 1 lb. If this ratio could be accepted as that which prevailed throughout, then each tree was burdened with about four times its own weight of ice. It should be remembered however that this ratio would vary with the thickness of the branch, so that the weight of ice compared to the weight of wood in an entire tree would be proportionally much less than indicated by the experiment. Nevertheless this gives a striking idea of the weight to which the smaller branches had either to adjust themselves or to yield.

Evergreens suffered less than deciduous trees, probably for the reason that their foliage prevented the ice to a certain extent from reaching the inner branches. The slender tops of cedars were broken however in many instances and open, spreading trees,

like the white pines, suffered considerably.

Trees growing close together were able to support each other more or less and in consequence our wooded tracts do not present quite as great a scene of destruction in proportion to the number of their trees, as may be noticed in connection with the more isolated shade and fruit trees along our roadsides and near our dwellings although in certain areas, where trees specially liable to destruction occur in abundance, the effects are more marked. An instance of this kind may be noticed in connection with the splendid growth of beech trees on the shore of Clove Lake, where the devastation is almost complete.

Staten Island felt the effects of the storm to a far greater extent than either Manhattan or the Bronx, where comparatively little damage was occasioned. In the New York Botanical Garden, Bronx Park, all the ice had disappeared from the trees by the middle of the day of Feb. 23rd, but here scarcely any difference could be noticed until a day later.

Mr. Wm. T. Davis read the following

NOTE ON THE ICE STORM OF JANUARY 21.
1881.

The severe ice storm of February 21st, which caused such destruction among the trees of the Island, particularly the white maples, lindens, tulips and sassafras (the last kind being the most damaged of all), was considered by many people to be exceptional, and the "oldest inhabitant" in several districts, said that we hadn't had the like before. The following note on the ice storm of January 21st, 1881, made by me at the time, will show however that it was at least quite similar.

"The rain, which fell fast during the early morning, froze as soon as it struck a solid body. The consequence was that the trees were covered with ice about one third to one half of an inch in thickness, making them both brittle and heavy. The wind then blew a gale from the south east, causing branches to break off on every tree. Beside our house there is a large white maple, about sixty feet high, which has lost its top and most prominent side branches, some of them being from

three to four inches in diameter. The crashing of falling branches was heard on every side, and the destruction is very great."

The tall maple mentioned above, still showed the affects of the storm in 1893.

MINOR NOTES.

Plectrophenax nivalis (Linn.) Snow Flake or Snow Bunting

Mr. Davis mentioned that during the snow storm on the afternoon of Feb. 22nd following the severe storm of the night before, a number of these birds were seen on the upper part of Taylor Street and on Carey Avenue, West New Brighton. The snow bunting was last mentioned in our Proceedings of March 18, 1893 as having been seen in a field on Todt Hill on Feb. 26th of that year.

Mr. Davis also exhibited living specimens of young "walking-stick" insects (*Diapheromera femorata*) recently hatched from eggs deposited last year by an insect in captivity, which had been captured in Connecticut.

Dr. Arthur Hollick exhibited a copy of Valentines' "Manual of the Corporation of the City of New York, for 1859" which contains, amongst other interesting things, a view of the old Quarantine grounds and buildings, at Tompkinsville, as they appeared in May 1858. As these buildings were burned on Sept. 1st and 2nd of that year (see "The Old Quarantine. Its' Destruction and the Causes which Led to It," Dr. F. Hollick, Proc. Nat. Sci. Assn. S. I., Special No. 16, Oct. 1893.) this view is probably one of the last which was taken.

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PROCEEDINGS
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NATURAL SCIENCE ASSOCIATION
OF STATEN ISLAND,
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VOL. VIII. No. 14.

APRIL 12th, 1902.

The regular meeting of the Association was held at the residence of Mr. J. Blake Hillyer, with the president in the chair.

The following were elected active members:

O. M. Curtis, Port Richmond

E. A. De Lima New Brighton

E. C. Hayward, Tompkinsville.

The secretary distributed copies of the essay on "Suggestions for the Preservation of our Native Plants," by F. H. Knowlton, which was awarded the first prize, in the competition of 1902, from the Stokes fund for the preservation of native plants and reprinted from the Journal of the New York Botanical Garden, Vol. iii (Mch. 1902) pp. 41-47, additional copies of which may be obtained on application by anyone interested in the matter.

The secretary also read a communication from Mr. E. P. Felt, State Entomologist, containing suggestions for mitigating the "bag" or "basket worm" nuisance in con-

nection with our shade trees and giving instances of what had been accomplished in other communities. This communication was submitted, together with one from Mr. E. B. Southwick, Entomologist to the Department of Parks, as a committee report on the subject by Mr. Fred F. Hunt.

Mr. E. C. Delavan read a paper describing a recent trip along the route of General Knyphausen's march from Staten Island into New Jersey, on June 6th 1780, illustrated with a series of photographs of most of the important localities and points of interest on the line of march.

Photographs showing the destructive effects of the ice storm of February 21st were presented by Mr. L. P. Gratacap and Mr. E. C. Benedict.

Mr. J. Blake Hillyer exhibited specimens of Drift fossils and an indian net sinker, found by Mr. Leavitt C. Parsons, on Harbor Hill.

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NATURAL SCIENCE ASSOCIATION
OF STATEN ISLAND.

VOL. VIII. No. 15.

MAY 10th, 1902.

The regular meeting of the Association was held at the residence of Mr. C. A. Ingalls, Port Richmond.

In the absence of the president Mr. Ingalls was elected Chairman *pro tem*.

The secretary distributed copies of an essay by Miss Cora H. Clark, entitled "New Missionary Work," which was awarded second prize, in the competition of 1902, from the Stokes Fund for the preservation of native plants; reprinted from the Journal of the New York Botanical Garden for April. The secretary also stated that this and the other prize essays published under the same conditions would be given as wide publicity as possible, as a beginning towards the attempt to check the useless and wanton destruction of our native wild flowers.

Dr. Arthur Hollick exhibited specimens and gave the following

NOTES ON OUR COMMON STEMLESS BLUE
VIOLETS

At the time when our local flora was catalogued, more than twenty years ago, three comprehensive species of stemless blue violets were recognized, under the names *Viola cucullata* Ait., *V. palmata* L., and *V. sagittata* Ait. Since that time our ideas of what constitutes a species or variety have undergone considerable change, and a number of new species, or old species restored, are now recognized in forms previously included under one or another of those before mentioned.

In looking over my herbarium specimens I find that the following species and varieties are represented :

Under *V. cucullata* Ait., there is also *V. obliqua* Hill, and *V. papilionacea* Pursh.

Under *V. palmata* L., is *V. palmata dilatata* Ell., and *V. Brittoniana* Pollard.

Under *V. sagittata* Ait., is *V. emarginata* Nutt. (Le Conte), and *V. ovata* Nutt.

Six additions are thus made to our original list by merely examining herbarium material and there is no doubt that we shall also find *V. papilionacea domestica* (Bicknell) Pollard and *V. palmata sororia* (Willd.) Pollard to be common here now that attention has been called to them.

It is interesting to note that in nearly every instance the above forms were collected, and mounted on separate sheets, because they were recognized as differing in appearance from the species under which they were placed ; and in this connection it is of special interest to recall that our late member, Mr. Geo. W. Wright, reported *V. diphysifolia* Nutt., from Port Richmond, which was admitted into the catalogue, somewhat doubtfully. He recognized the fact that he had found a violet which was not *V. palmata*, although closely resembling it, but did not realize that he had discovered a new species, which we now know as *V. Brittoniana*. The specimens from Mr. Wright's locality prove this beyond any doubt.

Mr. Wm. T. Davis read the following

NOTES ON THE BALTIMORE ORIOLE.

Now that the season of bird migration is at hand it may be of interest to mention the time of first appearance on the Island for a number of seasons past, of one of our most conspicuous birds, the Baltimore Oriole.

The record chiefly refers to the birds that first appear, and these are probably the same ones that build near my home at New Brighton. The Oriole usually makes his arrival known by his loud notes on some

Spring morning, and then may not be heard again for a day or two thereafter. No doubt in several instances I did not hear the first notes, and so did not record the bird until he had been present several days.

In Bird-Loss for April, 1899, Dr. A. K. Fisher gives the Baltimore Oriole among the birds to be expected at Sing Sing, N. Y., from May 1st to 5th, and in the same magazine for April, 1900, Mr. John H. Sage says that the Baltimore Oriole may be looked for at Portland, Conn., from May 1st to 10th.

The Staten Island records are as follows:—

May	2nd,	1880.	May	2nd,	1894
"	10th.	1885.	"	7th,	1895
"	9th,	1886.	April	30th,	1896
"	6th,	1887.	May	7th,	1897
"	7th,	1888.	"	10th,	1898
"	7th	1889.	"	8th,	1899
"	1st,	1890.	"	4th,	1900
"	5th,	1891.	"	11th,	1901
"	5th,	1892.	"	6th,	1902
"	6th,	1893.			

The date of April 30th, 1896 was during a period of a warm wave, when the barn swallows also arrived somewhat earlier than usual.

The Baltimore Oriole is usually silent during all of the month of July. About the 10th of August they commence calling again, and make their presence known until their departure for the South in September, I have heard them as late as the 26th of that month

SPECIMENS EXHIBITED.

Mr. Davis exhibited cakes of fused sand, caused by the burning of a haystack on a sand dune at Old Place.

Mr. A. B. Skinner exhibited a number of specimens of indian implements and parts of deer antlers, the result of recent collecting at several localities on the Island, notably at Mariner's Harbor.

PROCEEDINGS

OF THE

NATURAL SCIENCE ASSOCIATION

OF STATEN ISLAND.

VOL. VIII. No. 16.

OCTOBER 4th, 1902

The regular meeting of the Association was held at the residence of Dr. Arthur Hollick, New Brighton.

In the absence of the president Mr. S. M. Dix was elected chairman *pro tem*.

The following were elected active members:

C. M. Porter, New Brighton.
 Augustus Acker, New Brighton,
 Henry B. Brownell, New Brighton.
 Charles F. Hart New Brighton
 J. R. Fairchild, New Brighton.
 Governor Daniel Delehanty, Sailors' Snug Harbor.
 Robert E. Robinson, West New Brighton.
 Edward J. Wheeler, West New Brighton.
 Edward P. Doyle, Port Richmond.
 Geo. A. Middlebrook, Port Richmond.
 Samuel Alexander Henszey, Stapleton.
 Dr. J. E. Vidal, Stapleton.
 Dr. Herman Beyer, Stapleton.
 Joseph Neuburg, Stapleton.
 Geo. S. Scofield Rosebank.
 Daniel S. Hage, Dongan Hills.
 Lawrence A. Toepp, Richmond,

Dr. Arthur Hollick and Mr. J. Blake Hillyer were appointed a committee to arrange for a series of public lectures during the coming winter, in co-operation with the Staten Island Academy.

Dr. Arthur Hollick exhibited specimens of fibrous serpentine and other minerals and read the following paper:

NOTES ON RECENT EXPOSURES IN THE SOAPSTONE ROCK.

The drainage system now in course of construction in this vicinity, known as the Arietta

Street sewer, with its several branches, has exposed from time to time a series of sections through the soapstone rock, and brought to light many good specimens of the characteristic minerals.

The south-west corner of Westervelt Avenue and Second Avenue was known as a locality for fibrous serpentine a long time ago and some of our best specimens were obtained from there, so the progress of the sewer trench near this locality was watched with considerable interest. When it was reached a seam of this mineral was encountered, striking diagonally across Westervelt Avenue, in a south-west and north-east direction, and large masses were dug out, from which I selected these specimens. They are not as fine and silky as many previously obtained near the surface. The fibres are more compact, but they are unusually long, and in this respect we have no other specimens which can compare with them as some are three feet and more in length.

The compact texture and length of fibre are doubtless due to the fact that the part of the seam from which the specimens came was considerably below the surface and had not been subjected to weathering.

Apparently the contractor thought that it had some commercial value as most of it had been thrown in a separate place and was subsequently packed in barrels and removed.

Close to the serpentine seam was a band of massive green and red soapstone, unlike anything previously found in the vicinity, but similar to some of the disintegrated rock along the side of the Todt Hill road near Moravian Cemetery, where the red color is

due to the presence of limonite iron ore. produced by the weathering of the soapstone. (See Proceedings for Jan. 13th 1900.)

Numerous specimens of talc, marmolite, dark green massive serpentine, and other characteristic minerals, were also obtained, from the broken rock piled up along the side of the sewer cut at many places.

RECENT LITERATURE RELATING TO STATEN ISLAND.

In the *New York Herald* of June 11th, 1902, is an account of the sale of the old Crocheron homestead at New Springville, under foreclosure of mortgage held by St. Andrews Church at Richmond. The article is illustrated with pictures of the homestead and the

church and one of Rev. Dr. Yocum.

In the *New York Tribune* of June 29th, 1902, is an illustrated sketch of the Pattea House at New Dorp, in which is also included a picture of the Black Horse Tavern.

SPECIMENS EXHIBITED.

Dr Arthur Hollick exhibited a mineral substance, said to have been picked up at the Narrows just north of Fort Wadsworth and recently submitted to him for examination. The discoverers, for some unexplained reason, had an idea that it might have come from Martinique at the time of the eruption of Mount Pelee. It proved to be native sulphur and probably was part of a cargo of some vessel.

PROCEEDINGS

OF THE

NATURAL SCIENCE ASSOCIATION

OF STATEN ISLAND.

VOL. VIII. No. 17.

NOVEMBER 8th, 1902

The Twenty-second Annual Meeting of the Association was held at the Staten Island Academy.

In the absence of the President, Mr. Wm. T. Davis was elected chairman *pro tem*.

Reports of officers for the past year were read and approved, as follows :

SECRETARY

Number of members on roll at date of last annual meeting.....	67
Since elected.....	36
Resigned.....	1
Deceased.....	2
Dropped.....	1
Leaving at date.....	99

TREASURER.

Dr.

Balance from last year.....	\$380.27
Subscriptions to & sales of Proceedings.....	5.60
Interest on deposits.....	12.18
Membership dues.....	198.00

\$596.05

Cr.

Printing.....	\$164.79
Postage, stationery, etc.....	40.47
Subscriptions to periodicals.....	19.67
Public lectures.....	35.00
Janitor.....	10.00

\$269.93

Balance on hand..... \$326.12

CURATOR.

Additions to the Museum :

Entomology.....	1
Botany.....	2
Mineralogy.....	7

Additions to the Library :

Number of societies and institutions from which exchanges have been received.....	43
Number of separate publications received in exchange.....	257
By subscription.....	83
Donated.....	70
By purchase.....	35

Mr. Manuel Johnson, New Brighton, was elected an active member.

On motion, it was *Resolved* that the regular meetings of the Association during the ensuing year be held on the second Saturday of each month, except June, July, August and September.

The election of officers for the ensuing year resulted as follows :

President, Howard R. Bayne.

Secretary, Arthur Hollick.

Treasurer, J. Blake Hillyer.

Curator, C. A. Ingalls.

Trustee, Wm. T. Davis.

Mr Wm T. Davis exhibited specimens of the Praying Mantis and read the following paper :

PRAYING MANTIS ON STATEN ISLAND.

Last Spring Mr. Philip Laurent of Philadelphia, sent me a few egg masses of *Tenodera sinensis*, or "Praying Mantis," a native of Japan, but which for the last few years has been established in some localities about Philadelphia. Two of the egg clusters were placed in the garden of my residence at New Brighton, and the remainder in two brier patches in the Clove Valley. From the eggs placed in the garden I am able to show two fully grown Mantids, which are truly remarkable as well as formidable looking insects. From the eggs placed in the Clove Valley I have been unable to find any results, having discovered no Mantids or their egg masses attached to the briars, as is the habit of the insect. If this Mantis could be established on our Island it could have no other than beneficial results, as they feed on caterpillars and other insects. The specimens shown were kept captive for some time and they subsisted on raw meat. The *Tenodera* belongs to the Orthoptera, and is akin to our "walkingstick" insect, which, it may be well to add, was fairly common in the Clove Valley during the past Summer.

Mr. Davis also exhibited specimens of the Seventeen-year Locust and read the following memoranda :

SEVENTEEN-YEAR LOCUSTS IN 1902.

According to the newspapers we were to have a swarm of 17-year locusts in this locality during the past Summer. However, it was not to be expected that they would occur on Staten Island in any numbers, for seventeen years ago, in 1885, only a pupa skin and a detached wing were recorded from this locality (*see Proceedings for February 10, 1894.*) About the same evidence was collected this season. In June a 17-year Cicada was found in Mr. Leng's garden at West New Brighton, and later I found a pupa skin in the valley of Logan's spring brook. Our "locust year" will be in 1911. The U. S. Department of Agriculture distributed a circular early this year requesting information on the subject, as

the brood of Cicadas to appear had a wide distribution, being principally known in parts of New Jersey, Pennsylvania, Ohio and Illinois.

Mr. A. B. Skinner exhibited a living specimen of Muhlenberg's Turtle and gave the following account of the same :

MUHLENBERG'S TURTLE FROM SILVER LAKE.

The specimen exhibited was found in Silver Lake last September, and the species has not before been reported from the Island. Turtles and other aquatic creatures are occasionally liberated at Silver Lake and possibly the present specimen found its way there by that means. In Jordan's Manual the habitat of *Chelopus muhlenbergi* is given as Eastern Pennsylvania and New Jersey, and in the Zoology of New York DeKay mentions two specimens from Rockland County.

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OF THE

NATURAL SCIENCE ASSOCIATION

OF STATEN ISLAND.

VOL. VIII. No. 18.

DECEMBER 13th, 1902.

The regular meeting of the Association was held at the residence of Mr. Wm. Allaire Shortt, Tompkinsville, with the president in the chair.

In the absence of the secretary Mr. Shortt was elected secretary *pro tem*.

Dr. H. W. Patterson, New Brighton, was elected an active member.

The following paper by Dr. Arthur Hollick was read by title:

SOME COMPARISONS BETWEEN RECENT AND PREVIOUS ANALYSES OF OUR PUBLIC WATER SUPPLIES.

At our meeting of Feb. 9th, 1895, I read a paper upon the subject of our water supply, in which was included a table of comparisons between two analyses each of the waters of the Crystal Water and Staten Island Water Supply Cos.

These comparisons indicated a serious deterioration in the quality of the latter between the date of the first and last analysis, whereas the former, during about the same period, had undergone no important change.

Recently I was able to secure a number of subsequent analyses of the above and also of the waters from the New Dorp and Tottenville water supplies. For purposes of comparison the earliest and latest analysis of each is given, expressed in parts in ~~100,000~~ ^{100,000}, as follows:

STATEN ISLAND WATER SUPPLY CO

	June 30, 1883	Nov. 19, 1902.
Chlorine.....	0.879	39.2
Nitrites.....	none	0.0002
Nitrates.....	0.0823	0.35
Free ammonia.....	none	0.001
Albumenoid ammonia	0.0014	0.003
Hardness before boiling.....	6.727	19.04
Hardness after boiling	3.967	19.04

Organic and volatile matter ...	trace	22.50
Total solids.....	13.0	102.90

CRYSTAL WATER CO.

	Oct. 22, 1885	Oct. 30, 1902.
Chlorine.....	1.006	0.76
Nitrites.....	none	none
Nitrates.....	0.0329	0.0811
Free ammonia.....	trace	0.0015
Albumenoid ammonia	0.01	0.0035
Hardness before boiling.....	6.0	9.53
Hardness after boiling	5.0	7.91
Organic and volatile matter....	4.75	3.80
Total solids.....	12.50	13.80

SOUTH SHORE WATER SUPPLY CO (New Dorp.)

	Jan. 9 1899.	Oct. 30, 1902.
Chlorine.....	1.287	1.2
Nitrites.....	none	none
Nitrates.....	0.185	0.2458
Free ammonia.....	trace	0.0015
Albumenoid ammonia	trace	0.0015
Hardness before boiling.....	16.0	6.28
Hardness after boiling	12.0	4.67
Organic and volatile matter.....	2.0	3.2
Total solids.....	20.2	23.6

TOTTENVILLE WATER SUPPLY CO.

	Jan. 6, 1899.	Oct. 30, 1902.
Chlorine.....	1.190	1.0
Nitrites.....	none	none
Nitrates.....	trace	0.0082
Free ammonia.....	0.003	trace
Albumenoid ammonia	0.003	trace
Hardness before boiling.....	18.88	12.79
Hardness after boiling	9.26	4.42
Organic and volatile matter ...	1.60	1.40
Total solids.....	21.10	21.60

A comparison of these figures indicates that whereas the waters from the last three sources of supply have varied but little, and are apparently free from any contaminating influence, that from the Staten Island Water Supply Co. has passed the suspicious stage and shows a deterioration in quality that is alarming.

The great increase in chlorine is almost certainly to be accounted for by the presence of salt water, which has been drawn into the wells from the Kills, through the ground, by the suction to which the wells have been subjected in the attempt to supply a constantly increasing demand, or which has found its way in from the surface during high tides but the increase in the other suspicious constituents can hardly be explained except on the basis of sewage pollution.

The presence of nitrites in perceptible amount and the increase in organic matter from a mere trace to 22.50, are alone sufficient to cause apprehension and should lead to immediate action by our municipal authorities.

The subject of our water supply is receiving more or less official attention just now, but apparently it is the quantity and not the quality which is considered to be the most serious problem. So far as the Staten Island Water Supply Co. is concerned however, there seems to be no question that the limit has been reached in both directions, which

implies that the pumping station at West New Brighton should be abandoned and a new source of supply be secured as promptly as possible.

From the scientific standpoint it would be a matter of considerable interest to know what are the chemical constituents of the solid matter in each of the waters, as these would probably indicate the character of the water bearing strata or the origin of the supply. Theoretically, on geological grounds, the future supply for Staten Island should be from deep wells located on the south side. In the plain region of New Jersey the depth to which a well should be driven in any locality in order to reach a water-bearing stratum, has become a matter of almost exact calculation and satisfactory results have also been obtained on Long Island. The same geological formation, the Cretaceous, is known to underlie the entire coastal plain and there does not seem to be any valid reason why the plain region of Staten Island should be exempt from the conditions which obtain to the east and south. Instead of planning to obtain our future water supply from New Jersey or Long Island, as has been advocated, it is the opinion of those who have made a study of the geology of the region, that at least a series of test wells should first be driven at a number of localities along the south side.

PROCEEDINGS

OF THE

NATURAL SCIENCE ASSOCIATION

OF STATEN ISLAND.

VOL. VIII. No. 19.

JANUARY 10th, 1903

The regular meeting of the Association was held at the Staten Island Academy.

In the absence of the president Mr. Wm. T. Davis was elected chairman *pro tem*.

The committee on public lectures in co-operation with the Staten Island Academy reported that a program of four lectures had been arranged, as follows.

Tuesday, Dec. 2nd, 1902, by Professor G. W. Ritchey, of the Yerkes Observatory, University of Chicago, on "Some Recent Astronomical Photographs."

Thursday, Dec. 11th, 1902, by Dr. E. O. Hovey, of the Department of Geology, American Museum of Natural History, New York, on "Volcanos, Ancient and Modern."

Thursday, Jan. 15th, 1903, by F. W. Skinner, C. E., Associate Editor of the Engineering Record, on "American Bridge Building."

Thursday, Feb. 5th, 1903, by Mr. Cornelius Van Brunt, on "The Canadian Rockies and Their Flowers"

The lectures already given were well attended, in spite of inclement weather on each occasion. The lectures are free and tickets may be obtained by anyone by transmitting a stamped and addressed envelope to the Librarian of the Academy.

The following were elected active members:

Arthur A. Michell, West New Brighton.
Leavitt C. Parsons, " " "
S. McK. Smith, New Brighton
Charles R. Tucker, New Brighton.
Alanson B. Skinner, Tompkinsville.
Otto G. Kan, Stapleton.
Philip Dowell, Port Richmond,

Mr Wm. T. Davis exhibited a complete series of the species of hawk moths thus far captured on the Island and read the following paper:

STATEN ISLAND HAWK MOTHS.

In Professor John B. Smith's catalogue of the *Insects of New Jersey*, there are mentioned a number of hawk or sphinx moths that are southern species, but which owing to their long flights are found occasionally near New York. Unfortunately, I have been unable to include any of these in this preliminary list, for although they undoubtedly occur on our Island, I have thus far failed to catch them. As an illustration of the flight of these insects I may quote from Mr. August R. Grote's *Hawk Moths of North America*. In referring to our Island, he says: "On one such occasion I discovered resting on a wild vine, which grew on the South Beach near the sand and the waters of the bay, a pair of the great green vine hawk *Philampylus pandorus*. One I took, but the other escaped me, flying directly over the bay and out to sea. So far as I could watch its arrowy flight, over the smooth expanse of ocean, it kept its course towards the Atlantic, cleaving the saffron colored air, now turning golden under the rays of the sun".

In a recent work on *Caterpillars and Their Moths*, by Ida M. Eliot and Caroline G. Soule, our native species of hawk moths and their caterpillars are figured.

They are also mentioned in Mr. Beutenmüller's *Descriptive Catalogue of the Sphingidae found within fifty miles of New York City*.

After each name in the following list I have mentioned the months when the species has been taken on our Island and I am indebted to my friend Mr. Oscar Fulda, of Stapleton, for some additions to my notes in this connection.

Hemaris thysbe Fabr. I have always found the typical *thysbe* in July and August and the variety *uniformis* in May and June.

Amphion nesus Cram. This insect often flies in the brightest of sunshine and may occasionally be seen about the flowers of the blackberry in June.

Thyreus abbotii Swains. May, June, July.
Deidamia inscripta Harr. June.

Deilephila lineata Fabr. July, Aug. Sept. Oct. 23rd, 1900. As an illustration of the powerful flight of the Sphingidae I may mention that one day in August, several years ago, I observed several English sparrows endeavoring to capture a *lineata*. The moth flew in circles, while the sparrows made vain efforts to head it off. Occasionally this species, which usually flies in the twilight of morning and evening, also flies at noonday. I have seen it in the brightest of sunshine, visiting the flowers of a thistle.

Choerocampa tersa Linn. May, June, Aug., Sept. This insect has been taken at *Petunia* flowers, which are also attractive to other hawk moths.

Philampelus pandorus Hub. June, July, Aug. A specimen has been given me by Mr. A. B. Skinner, which was collected in the first part of November, at New Brighton.

Philampelus achemon Dru. June, July, Aug.

Ampelophaga choerilus Cram. July, Aug.
Ampelophaga myron Cram. July Aug.

This and its congener are often attracted by the mixture called "sugar," ordinarily prepared for noctuid moths.

Protoparce celeus Hub. June July, Aug., Sept. This, like many other of the Sphingidae, is quite dazed when disturbed in the day-time. I once found one on a fence and threw it into the air. It flew about in circles for a considerable time before it selected a definite direction.

Protoparce carolina Linn. July, Aug. Sept. The Carolina sphinx and *celeus* visit the funnel-shaped flowers of the two species of *Datura*. Many of them are killed by the electric lights. I have found as many as ten specimens of *celeus* about one electric lamp.

Sphinx kalmiae S. and A. Aug.

Sphinx drupiferarum S. and A. June.

Sphinx chersis Hub. June, July.

Sphinx eremitus Hub.

Sphinx plebeius Fabr. May, June, July.

Ceratomia amyntor Hub. May, June

Ceratomia undulosa Walk. May, June, July, Aug.

Triplogon modesta Harr. The caterpillar has been found on the Island.

Smerinthus geminatus Say, Aug.

Paonias excaecatus S. and A. July.

Paonias myops S. and A. June.

Cressonia juglandis S. and A. June.

Mr. A. B. Skinner exhibited specimens of indian arrow points and pottery and read the following paper :

NOTES ON INDIAN CAMP SITES NEAR SILVER LAKE.

Several times during the past spring and summer, while walking about in the Clove Valley, and in the vicinity of Silver Lake, I was surprised to find occasional arrow points, flint chips, and other traces of aboriginal occupation. Nevertheless, no particular search was made until November 16th, 1902, when, strolling near Silver Lake with Mr. M. R. Harrington, of the American Museum of Natural History, we came across a fragment of a flint knife, in the middle of the path, leading from the Harbour Hill golf links to Logan's Spring Swamp. Although we searched about carefully, we did not find any more implements in the immediate vicinity, but when we reached the north-east end of the lake we found a number of quartz and flint chips and several scrapers, one of which, found by Mr. Harrington, was of the stemmed variety.

Only a short time before this I had discovered a spear head in the path at this point,

and a rude arrow head near by. Mr. Harrington, who is an authority on the subject, says this was probably the site of a prehistoric indian camp.

A continued search about the lake brought to light a number of chippings, flint, etc. from the wooded side, but none from the side on which the buildings are located.

On the same side of the lake, but at the end opposite camp site no. 1, we found many chips in a small area, and I was fortunate enough to secure a small and somewhat imperfect arrow point of a type not common in this vicinity. These articles were all we found on this occasion, but they suggested the possibility of another camp site.

The following day, Nov 17th, 1902, I determined to make an exhaustive search about both sides. At camp site no. 1 a few chips

were found but nothing else, while at camp site no 2 a portion of a black flint war point, a tiny fragment of pottery, together with many chips, was the reward. Several trips to this locality since then have yielded abundant chips, but no implements of any kind.

I have also located another camp site near the shore of Schoenian's Pond. In the road near the ice house many chips and portions of implements were found. During the past spring, near this locality, I found a handsome yellow jasper knife, a portion of a quartz warpoint, and a fine black flint arrow head,

We may expect that when the roads for the new park system are cut through, more traces of aboriginal occupation will be brought to light, in the vicinity of Silver Lake and the Clove Valley.

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PROCEEDINGS

OF THE

NATURAL SCIENCE ASSOCIATION

OF STATEN ISLAND.

VOL. VIII. No. 20.

FEBRUARY 14th, 1903.

The regular meeting of the Association was held at the residence of Mr. Howard R. Bayne, New Brighton, with the president in the chair.

Mr. T. F. Kane, New Brighton, was elected an active member.

The secretary presented a copy of a bill recently introduced in the Assembly, the object of which is to enable the State to acquire title to the Billopp House and its surroundings, at Tottenville, and to preserve the same; also correspondence relating to the matter from Mr. A. De Groot, through whose active personal interest the bill was drafted, stating that a hearing had been appointed for Wednesday afternoon, 25th inst., before the Committee on Ways and Means, at Albany, and requesting that the Association exert its influence to secure favorable action by the committee. The secretary also read the following memoranda on

SOME PREVIOUS ATTEMPTS TO SECURE PUBLIC CONTROL OF THE BILLOPP HOUSE.

Numerous efforts have been made in the past, by public spirited citizens, to induce the Legislature to pass some kind of an act which would enable the State or County to secure control of the Billopp House, in order that it might be preserved, on account of its historical associations, and it may be of interest to recall the part that our Association has taken in connection with these efforts.

In 1889 a bill was introduced, similar to the one now under consideration, and at our meeting of Jan. 12th of that year a committee was appointed "with power to act for and to represent the Association in all matters pertaining to the Billopp House and its proposed

purchase for public property." This committee conferred with the representatives of the Aspinwall estate, which had control of the property, but nothing could be accomplished.

At our meeting of Dec. 13th, 1890, this committee, through its chairman, Mr. Ira K. Morris, submitted a report which was printed in full in our Proceedings of that date, accompanied by a wood-cut, showing the appearance of the house some fifty years previously, and on Sept. 11th, 1897, Mr. Morris read a paper on "Popular Errors Concerning Christopher Billopp," which may be found in Vol. vi, No. 9, of our Proceedings. About this time the Chamber of Commerce tried to arouse an interest in the matter and Mr. Morris was again actively at work as a member of that body as well as a member of this Association

In our Proceedings of Sept. 9th, 1899, may be found reference to a rumor regarding impending legislation and in 1901 I had, as secretary, more or less correspondence, in trying to learn something about a bill identical with the present one, which was introduced by Assemblyman Van Name, but failed to pass.

In view of these facts it would seem as if we ought to take advantage of the opportunity now offered and do what may be within our power to help along the pending legislation.

After discussion the following resolutions were formulated and adopted:

Resolved, that this Association heartily indorses the efforts now being made to acquire the Billopp House at Tottenville for public property.

Resolved, that a copy of the above resolution be transmitted to Assemblyman Chas. J. McCormack, together with any documents relating to the matter, or any references to sources of information, which may be in the possession of the Association.

Resolved, that the president appoint a committee, to consist of the secretary and two other members, who shall endeavor to be present at any hearing which may be held before the legislative committee having the act in charge, to urge favorable action by such committee; or who shall sign and forward to such committee, on behalf of this Association, a copy of these resolutions.

The president appointed Mr Geo. Cromwell and Mr. Geo. S. Scofield as the members to act with the secretary under the above resolution.

The secretary also read the following memorandum on

THE RENAMING OF OUR STREETS.

My attention has been called to the fact that at the meeting of the Board of Aldermen on Dec. 23d, 1902, the following resolution was submitted to the Committee on Streets, Highways and Sewers:

"Resolved, That the new street, commonly called Father Murphy's street, running from Richmond turnpike to Ward's avenue and located between Cebra avenue and Louis street, in the Borough of Richmond, be and the same hereby is designated and shall hereafter be known as Austin place, and the President of the Borough of Richmond is hereby authorized and requested to note the change on the maps and records of The City of New York."

At the meeting of the Board on Jan. 5th, 1903, the committee submitted a favorable report and the resolution was adopted.

This incident emphasizes anew the necessity for immediate action by some responsible body in this Borough, in the direction of preparing a list of street names, in order to prevent further duplication. The name "St. Austin's Place" has been used for a long time to designate a street in West New Brighton, between Bard and Davis avenues and this fact should have been known by the alderman from this ward and the above action

prevented.

In a communication received from Mr. Geo. Cromwell, President of the Borough, he suggested that the Association could be of material assistance to the municipal authorities when the matter of renaming the streets is undertaken and doubtless we could also secure the cooperation of the Chamber of Commerce. We have a committee on this subject which has been at work on a report for some time, but doubtless it was not appreciated that there was any immediate necessity for the completion of the report.

Correspondence relating to the subject was read from Mr. Lester W. Clark, chairman of this committee, and, after discussion, the president was authorized to appoint two additional members on the committee, and the committee was authorized to fill any vacancies which might occur in its membership. The committee was requested to prepare and submit, at the next meeting of the Association, on March 14th, a complete list of duplications and proposed changes in street names in the Borough; also that it confer with the President of the Borough and arrange for public hearings on any changes suggested, after the same have been acted upon and approved by the Association, and that the Chamber of Commerce be invited to co-operate in the matter.

Mr. Wm. Allaire Shortt and Mr. A. K. Johnston were appointed as the additional members of the committee.

Dr. Arthur Hollick read the following review and criticism:

RECENT LITERATURE RELATING TO STATEN ISLAND.

Origin of Certain Place Names in the United States. Henry Gannett. Bull. U. S. Geol. Surv. No. 197. Washington, D. C. 1902.

This is an octavo pamphlet consisting of an alphabetical list of about ten thousand names of villages, counties, towns, rivers, mountains and other political divisions and natural features, in all sections of the United States, together with memoranda on the origin or meaning of the names. Criti-

cisms and suggestions are requested, and, so far as Staten Island is concerned, both should be forthcoming.

It would be interesting to learn, in the first place, how the names in the list as a whole were obtained or selected. In regard to our locality it is difficult, for example, to understand why certain names were omitted, such as Stapleton, Port Richmond, New Dorp and New Brighton, when Tompkinsville, Tottenville, Kreischerville and Rossville are included. A more or less careful scrutiny, has failed to reveal any names that are connected with our important natural features, such as the Narrows, the Kill van Kull, etc., although these are in constant use in commerce and navigation and have far more than a mere local interest attached to them. The names Castleton, Westfield and Northfield look familiar, but they all refer to towns elsewhere than on Staten Island. Clifton is listed as a "village in Green County, Ohio, named from the cliffs which bound the river at this point," but our Clifton, named from the steep banks which face the bay, is ignored.

In its relation to Staten Island, however, the reason for the incompleteness may be readily understood when the list of authorities and acknowledgements is scanned. There is no reference to our Proceedings or to any member of the Association and no hint as to how or through whom the few local names listed were obtained.

If a new edition of the the work is contemplated we would suggest that the compiler begin by consulting a file of our Proceedings, paying particular attention to Vol. v, No. 5. Special No. 21 (Staten Island Names. Ye Olde Names and Nicknames) and also that he place himself in communication with those of our members who are specially interested in our local history. Such a course of procedure would seem to be the logical one to pursue in any attempt to compile a work of this kind, and it might lead to the correction of the misnomer "Princess Bay," adopted some years ago by the United States Geological Survey to designate Prince's Bay, appar-

ently in order to obviate the use of the possessive, which is one of their rules of geographic nomenclature. The application of this mischievous rule would of course necessitate the change to "Prince Bay" but could not possibly sanction the substitution of the word "Princess," which entirely eliminates the family name of Prince, from which the bay derived its name.

Dr. Hollick called attention to two specimens of Drift bowlders and read the following memorandum in connection with the same :

TWO ADDITIONS TO OUR LIST OF DRIFT FOSSILS.

At our meeting of April 12th, 1902, it may be remembered that some fragments of Drift bowlders, containing fossils, collected by Mr. Leavitt C. Parsons, on Harbor Hill, were shown by Mr. Hillyer. These have been donated to our museum and have recently been subjected to critical examination. One is Lower Helderberg limestone, containing *Stropheodonta* sp? and the other is Chemung sandstone, composed almost entirely of the remains of brachiopods, amongst which are *Spirifer mesistrialis* Hall and *S. mesacostalis* Hall.

This latter specimen is of special interest to us as it represents the first indication which we have been able to record of the occurrence of Chemung sandstone as one of our Drift elements. It also adds two new species to our list of Drift fossils.

SPECIMENS EXHIBITED.

Mr. A. B. Skinner exhibited specimens of indian implements and pottery, representing recent collections in the vicinity of Linoleumville, Watchogue, Mariners' Harbor, Silver Lake and on Pavillion and Ward's Hills.

Mr. Chas. Humphrey exhibited a collection of butterflies, made personally while in the Dutch East Indies.

Mr. Wm. T. Davis exhibited living specimens of *Branchipus*, collected on Feb. 12th, in a pond near the Black Horse Tavern; also mounted specimen of *Cuterebra* (Rabbit Bot-fly) together with a bumble bee for comparison, and gave an account of the life history of each species.

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PROCEEDINGS

OF THE

NATURAL SCIENCE ASSOCIATION

OF STATEN ISLAND.

VOL. VIII. No. 21.

MARCH 14th, 1903.

The regular meeting of the Association was held at the residence of Mr. Fred. F. Hunt, New Brighton, with the president in the chair.

Mr. Wm. T. Davis, for the Committee on Re-naming of Streets and Highways, reported that a complete list of all the street and highway names in use on the Island, including duplications, had been prepared, but that the report in its proposed final shape was not quite ready for submission.

On motion the report was accepted as a report of progress and the committee was continued.

The secretary, for the Billopp House Committee, reported that the Association had been represented by Mr. Wm. A. Shortt at the hearing before the Assembly Committee on Ways and Means and that Mr. Shortt had reported to the effect that he considered it very doubtful if the State would undertake to acquire the property.

On motion the report was accepted as a report of progress, and the Committee was continued.

The following were elected active members:

Winfield R. Koller, Port Richmond and Wm. MacDonald, Stapleton.

Mr. Sanderson Smith stated that he had been authorized to offer to the Association the mineralogical collection of the late Robert T. Robinson and the

collection of birds nests and eggs belonging to Mr. Beverly W. Robinson.

Voted: That the collections be accepted, with the thanks of the Association, and that the secretary confer with Mr. Smith and arrange for the transfer and placing of the same in the Staten Island Academy.

Dr. Arthur Hollick read the following paper:

THE LATEST MOVEMENT FOR PUBLIC PARKS ON STATEN ISLAND.

During the past month most of us have doubtless either received or seen the pamphlet of twenty-four pages, with map, entitled "Report on a Proposed Park System for the Borough of Richmond, New York City, prepared and submitted by the Committee on Parks of the Staten Island Chamber of Commerce." This represents the latest effort of the many which have been made towards acquiring land for public parks on Staten Island, and it seems to have been started in the right way.

The report consists of an account of the part which the Chamber of Commerce has taken in the movement, together with the report of its Committee on Parks, including descriptions of areas best suited for park purposes and a map of the Island with the areas colored in green. Several discrepancies may be noted between the descriptions of the areas and the areas as indicated on the

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map, but as both are merely meant to indicate in a general way what is desirable, these discrepancies can be readily harmonized when exact boundaries, in accordance with careful surveys, have been determined.

Of special concern to the Natural Science Association are those areas within which are included many of our most striking natural or most interesting historical features. The former will probably be retained anyway, in any system which may be adopted, because they appeal to even the most superficial observer, irrespective of local interests, but the latter must look for protection to those who are specially alive to their importance for purely sentimental reasons and from feelings of local pride.

Amongst these historical features may be mentioned the Billopp House at Tottenville and the old British forts on the Low and Herpich properties at New Brighton and on Richmond Hill. It is certainly our special privilege to call attention to the advisability of having these included within any park system which the authorities may finally decide upon and to endeavor to arouse a general public sentiment in favor of this particular phase of the movement.

It may be remembered that our former president, Mr. Walter C. Kerr, made an urgent and eloquent appeal for public parks at our meeting of June 8th, 1895, and his address on the subject was printed in our Proceedings of that date. A committee was appointed and considerable work was done in the direction of arousing public interest in the matter. Shortly after this, however, the Chamber of Commerce was organized and Mr. Kerr suggested that it would be the proper body to take general charge of the matter. In accordance with this suggestion, on Nov. 14, 1896, the Association adopted the following

resolution:

Resolved: that this Association express its approval of the resolution substantially as printed in the notice of the meeting dated Nov. 12th, 1896, of the Chamber of Commerce, and that it tender its co-operation in the furtherance of the desired end."

It is therefore not only proper that we should assist this latest movement in any way which we may, but we are already pledged to do so.

Incidentally it may be remarked that our secretary is president of the Richmond County Park Commission, which is engaged in laying out Silver Lake Park, and Mr. Kerr is one of the Commissioners, while on the Park Committee of the Chamber of Commerce our Association is represented by Mr. Wm. T. Davis, Mr. John M. Carrere, Mr. E. J. Wheeler and Mr. A. K. Johnston, besides, as ex-officio members, Hon. Geo. Cromwell, Dr. Arthur Hollick and Mr. Louis L. Tribus.

The paper was discussed and the following resolutions were adopted:

Resolved: that this Association renews its tender of co-operation of November 14th, 1896, with the Staten Island Chamber of Commerce, in connection with the effort to secure a park system for Staten Island, and,

Resolved: that this Association request the Chamber of Commerce to make special effort to have the Billopp House at Tottenville and the old British forts at New Brighton and Richmond included in the suggested park system, and,

Resolved: that the president appoint a committee of three members to sign and transmit a copy of these resolutions to the Chamber of Commerce, or to attend any meeting of the Chamber which may be called to discuss park matters, and present the same in person.

The president appointed Mr. John DeMorgan, Mr. Fred. F. Hunt and Mr. Geo. S. Humphrey as such committee.

Mr. Sanderson Smith read an article on the Billopp House and its proposed

purchase by the State, from the N. Y. Times of March 8th, 1903.

Dr. Arthur Hollick read the following paper:

**ANALYSES OF SOLID MATTER IN THE
TOTTENVILLE AND NEW DORP
WATER SUPPLIES.**

In my paper upon our public water supplies, published in our Proceedings for Dec. 13th, 1902, I mentioned that it would be a matter of considerable interest to know what were the chemical constituents of the solid matter contained in the waters. Since then I have been furnished with the following two analyses, through the kindness of Dr. J. A. Deghuee, head chemist of the Department of Health:

	Tottenville.	New Dorp.
Silica.....	1.60...	2.32
Sulphuric Anhydride SO ₃ .....	.76.....	.824
Iron and Alumina Oxide.....	1.04.....	1.68
Lime.....	6.48	5.46
Magnesia.....	1.16.....	4.25

(The figures represent parts in 100,000.)

The relatively large amount of lime in the Tottenville water is difficult of explanation in connection with any facts now in our possession. There is no limestone in the vicinity and the amount of lime in the Drift and in the underlying Cretaceous clays is very small (See Proceedings, May 11th, 1901,) so that the origin of this constituent is a problem which awaits solution.

In the New Dorp water the relatively large amounts of lime and magnesia especially the latter, are to be expected, by reason of the close proximity of the serpentine rocks, and they point to the origin of this supply in the hills to the north, although the Drift in which the wells are driven contains more or less serpentine as morainial material.

Mr. Fred. F. Hunt performed a simple

test to show the solid matter in the New Brighton water supply by putting a pinch of phosphate of soda into a tumbler of the water and causing the lime and magnesia to show as a precipitate.

Mr. Nils Bergquist exhibited a small leach, which was discharged from a faucet supplied from the Crystal Water Co.

Mr. Wm. T. Davis submitted and read extracts from a list of additions to "Staten Island Names. Ye Olde Names and Nick-names," published as Special No. 21 of our Proceedings, on March 14th, 1896.

On motion the following resolution was adopted:

Resolved: that the Association express its appreciation of the work of Mr. Davis, and that he be requested to have the same published at his discretion, as a special number of the Proceedings, under such conditions as may be mutually agreed upon between the Association and Mr. Davis,

Mr. Davis also read the following paper, illustrated by a specimen:

**NOTES ON THE TIME OF FLOWERING
OF A WHITE MAPLE.**

The white maple (*Acer saccharinum* L.), commonly planted along our avenues and roads, blossoms at this season of the year, and for a number of seasons past I have noted when the first flowers appeared on a tree growing near my residence at New Brighton. The flowers on this tree are staminate, and the following table shows the time of their first appearance in each year noted:

1893, March 25th.	1898, March 5th.
1894, " 5th.	1899, " 10th.
1895, " 20th.	1901, " 26th.
1896, April 5th.	1902, " 12th.
1897, March 13th.	1903, " 9th.

The position of a tree has much to do with its time of flowering, and it will often be found that the tree on a sunny corner of a street will be in flower,

while the trees in the more shaded part of the row will not be so far advanced. The earliest date that I have for the blossoming of the white maple, is in the warm winter of 1889-'90, when a tree was found in flower on the 16th of February.

Mr. A. B. Skinner exhibited specimens of indian relics and read the following paper :

RECENT EXCAVATIONS IN INDIAN CAMP SITES AT MARINERS' HARBOR.

On the sixth of this month, while in the company of Mr. Chas. Benedict and Mr. Leavitt C. Parsons, I visited the old indian village sites, located in the vicinity of Arlington station, Mariners' Harbor. We found nothing more than a few points, etc. upon the surface, until we came upon a railroad cut made from the B. & O. R. R. to the Shore Road near Bowman's Brook. This cut runs directly through the richest of the Mariners' Harbor sites, and exposes shell pits and fire places at intervals, for some distance.

Scratching in the largest of these fire pits we found oyster and clam shells, split and charred deer bones, and a great quantity of fragments as large as the palm of a man's hand, and even larger.

The search was continued until the pit was entirely worked out and on completion we found we had portions of at least four vessels of different designs and workmanship. Unfortunately none of these can be put together to any extent on account of the fact that very little if any of the rims or bases were found, which statement holds true for the material from all pits in the vicinity, although Mr. Parsons found, in one nearby, the bottom of a vessel which terminated in a curious little hump.

Not satisfied with the results of the search, rich as they were, I visited the site the following day with Mr. Wm. T.

Davis, and we proceeded to work the remaining pits. On looking over the surface for indications, we found a fragment of a beautifully decorated pipe, and much pottery, in the sand that had been carried off and dumped to form the road bed farther down, where the ground is swampy.

The first pit opened was quite near the Shore Road, and was very rich in split and cracked deer bones. This pit contained also portions of two arrow-heads, one of the bevelled-to-the-right variety, a hammer-stone, two pieces of cut antler, a fragment of bone showing notches made by a flint knife, a bone awl, a piece of the stem of a very finely ornamented clay pipe, fragments of pottery and other usual articles.

This pit we christened Pit No. 1, on account of its close proximity to the Shore Road. It was upwards of 100 feet north of the pit excavated on the previous occasion. It was about three feet deep by four broad. Between this pit and pit No. 2 were several small fire-holes, the majority of them being merely the edges of pits that had been dug out by the laborers and the contents thrown in the dump along with the sand. These all contained potsherds, bones, etc., but were not large or rich enough to deserve special mention, with one exception. This was a pit (No. 3,) situated a few yards south of No. 2, and it contained, besides the usual articles, a fine bone awl, made from one of the hollow bones of a turkey or other bird. This awl unfortunately was broken, before its value was recognized, but has been mended. While at work the good people of the vicinity flocked out to see. We were shown 'an Injun axe', and told that two others and 'a arer head', about 6 inches long and finely serrated, had been found there.

SPECIMENS EXHIBITED.

Mr. Fred. F. Hunt exhibited two specimens of Drift bowlders,--both crystalline rocks,--one from near Huguenot, containing graphite; the other from the vicinity of Silver Lake, containing garnets.

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PROCEEDINGS OF THE NATURAL SCIENCE ASSOCIATION OF STATEN ISLAND.

VOL. VIII. No. 22.

APRIL 11th, 1903.

The regular meeting of the Association was held at the residence of Mr. C. A. Ingalls, Port Richmond, with the president in the chair.

Mr. Lester W. Clark and Mr. Wm. T. Davis, for the Committee on Re-naming of Streets and Highways, submitted a complete report, embodying the following features: 1st, a list of all the street and highway names in use on the Island, including duplications, alphabetically arranged, and with location indicated in each case; 2d, a separate list of the duplicated names, arranged in a similar manner; 3d, a list of suggested new names, appropriate to the different parts of the Island, based upon old local family names, events in local history or prominent natural features.

On motion the report was accepted and the committee was continued, with instructions to confer with Borough President George Cromwell in relation to the matter.

Mr. John DeMorgan, for the committee appointed to co-operate with the Chamber of Commerce on park matters, reported having presented the resolutions adopted at the last meeting, at the meeting of the Chamber of Commerce held on April 6th, on which occasion they were well received and the suggestions contained in them were adopted.

On motion the report was accepted

and the committee was continued.

The secretary read a letter of resignation as a member of the committee from Mr. Fred. F. Hunt, which was accepted and the president appointed Mr. Edward M. Stothers to fill the vacancy.

Mr. A. B. Skinner read the following paper:

LIST OF INDIAN VILLAGES AND CAMP SITES ON STATEN ISLAND.

In compiling the following list, I have been largely aided by Mr. Wm. T. Davis, who very kindly conducted me personally to many of the sites, and gave me information in regard to others. Thanks are also due to Mr. Charles Benedict and to Mr. Leavitt C. Parsons for similar assistance and information. Our Proceedings have also been of great service in locating these places. The list is probably fairly complete, but the data in my possession concerning the south and east shores is exceedingly meagre, and there are doubtless many camp and even village sites yet unmentioned.

WEST NEW BRIGHTON.

1. Village site and burial grounds at Upper or Pelton's Cove, between Livingston and West New Brighton. When the Shore Road was cut through this place many years ago numbers of skeletons, implements, etc., were found. This site is now obliterated.

2. Village site reported at West New

Brighton, now obliterated. Said to have been situated, in part, between Cedar and Dongan streets. When the foundation for the new Parish House of the Church of the Ascension was being dug this Spring, shells, skeletons and implements are said to have been found. A three-pitted hammerstone and a small fragment of pottery were found personally.

MARINERS' HARBOR.

3. Large village site extending from "Blue-Bent Field" to Western avenue, mostly along the shore. Small shell heap on South avenue, opposite the Arlington station. Opened personally in May, 1902. Pottery, flint, horn and bone implements, and grooved axes obtained.

Recent railroad cut made by Milliken Bros., near DeHart's brook, exposed many shell-pits, etc. Pipes, flint, horn and bone implements, and several grooved axes were obtained.

Scattered lodges along Bowman's Point nearly to Peggy's Point.

4. Large village site on Tuinessen's or Old Place Neck. Shell heap near extreme end, from whence came the major portion of a pot showing Iroquoian influence. No horn or bone implements obtained here. Recent relics, such as a brass arrowpoint, bullets, gun flints, etc., have been found here.

Graves reported on property of Rev. James Kinney some years ago.

BLOOMFIELD (WATCHOGUE.)

5. There is no special large village site in this region, but relics occur more or less abundantly on all of the dunes and sand-hills. A stone plummet (?), grooved axes, Iroquoian pottery, pipes, arrow-points, etc., have been found here. Mr. Isaiah Merrill has a fine collection of objects said to have been collected about here, among which is a steatite bead. An inscribed clay bead in my possession is also said to have been found here.

CHELSEA.

6. Lodges about the Watchogue road, near its junction with Union avenue, grooved axes reported; no pottery. This is really a continuation of No. 5.

LONG NECK (LINCOLNVILLE.)

7. Scattered lodges and some shells along the north side of the Neck.

8. Scattered lodges on south side of the Neck, opposite Price's Island. Shell heap, with pits, but no relics in them.

NEW SPRINGVILLE.

9. Site at New Springville on Corson's Brook. Shells and graves reported; also iron arrow-head.

GREEN RIDGE.

10. Camp site between Journeay avenue and Annadale road, near Richmond Plank road. Early relics.

11. Small village site on Lake's Meadow Island. Small shell heap. Early relics of Indian origin. This site is mentioned by Thoreau in his letters.

WOODROW.

12. Small village site on Sandy Brook, between Pleasant Plains road and Journeay avenue. Early relics, no shells.

KREISCHERVILLE.

13. Lodges, shells, etc., from Cedar Hill to Winant's Brook. Sites all along shore to Rossville. Early relics.

TOTTENVILLE.

14. Extensive shell mounds near Billopp house. Burial ridge nearby, excavated by Mr. George Pepper for the American Museum of Natural History some years ago. Early and modern relics. Horn and bone implements; traces of fabrics and copper. Shells all over the point, and running northward to Richmond Valley. Grooved axe weighing 15 lbs. found here.

HUGUENOT.

15. Site recorded on Bunker Hill near Arbutus Lake.

16. Small shell heap on the bluff

overlooking the bay, near Seguine's point.

ARROCHAR.

17. Site on Richmond avenue, near Arrochar station. There are probably more sites in this neighborhood, but no others have been reported.

NEW BRIGHTON.

18. Camp site and scattered relics on Harbor Hill golf links, a little above Castleton avenue, and near Richmond Turnpike.

19. Camp sites at Silver Lake; shell pit with pottery. Scattered relics along the Shore road near St. George.

20. Camp site on Harbor Hill near Harbor brook and Lafayette avenue.

21. Camp site near junction of Bard avenue and Clove road at foot of Nannyberry hill, just above Schoenian's pond.

RICHMOND.

22. Large camp site back of Richmond, in a clearing in the woods near Ketchum's mill-pond on Simonson's brook. No shells. Grooved axes and early relics.

OAKWOOD.

23. Shell heap reported on salt meadow near Lake's mill.

TOMPKINSVILLE.

24. Possible battle site on Ward's hill, near Cebra avenue. Many triangular so-called war points found in a small area.

Dr. Arthur Hollick described briefly some of the work of the United States Geological Survey, recently concluded or now under way in this vicinity, and exhibited Folio No. 83 of the Survey publications just issued, with the following memorandum:

RECENT LITERATURE RELATING TO STATEN ISLAND.

Geologic Atlas of the United States; New York City Folio; Paterson, Harlem, Staten Island, and Brooklyn Quadrangles; New York - New Jersey.

F. J. H. Merrill, N. H. Darton, Arthur Hollick, R. D. Salisbury, R. E. Dodge, Bailey Willis, and H. A. Pressey. Folio No. 83 U. S. Geol. Survey, Washington, D. C., 1902; pp. 19; maps 13; figs. 1-12 in text; figs. 13-24 on separate sheets 1 and 2.

This folio is of special interest to those who reside on Staten Island and is indispensable for anyone who may desire a knowledge of the geology, topography or physiography of this vicinity. In the text there are chapters on the "General Geography of the District," by R. E. Dodge and Bailey Willis; "Geology of the District," by Bailey Willis, F. J. H. Merrill, N. H. Darton, Arthur Hollick, and R. D. Salisbury; "Physiographic Features of the District," by Bailey Willis and R. E. Dodge, and "Water Supply of New York City," by H. A. Pressey. The Staten Island serpentine is discussed under igneous rocks, on p. 5; the Triassic shale and trap rock receive brief mention in connection with the general account of the Newark Group in the district; the Cretaceous clays and kaolins of the Island are made the subject of a special subchapter on pp. 10, 11; the Tertiary deposits, represented by the yellow gravel on Todt Hill and in the vicinity of Kreischerville, are mentioned on p. 11, and the terminal moraine is described on p. 13.—Fig. 1 is a small map of the whole area included in the description and larger maps, showing the drainage areas and sub-marine contours; Fig. 12 is a sketch map which shows the direction of glaciation and the limits of the terminal moraine, with its furthest southern extension on Staten Island, and fig. 22 is a view of the morainal hills in the vicinity of Grasmere.

The four quadrangles into which the district is divided are each represented by three maps,—one topographic, one representing the surface geology, and

one indicating the underlying formations. The maps of the Staten Island quadrangle should be in every school on the Island.

Mr. E. C. Delevan submitted the following :

ADDITIONAL INFORMATION CONCERNING COLONEL LOVELACE.

[The following memorandum may be added to my paper, which was published as Special No. 22 of our Proceedings, under the title "Colonel Francis Lovelace and His Plantation on Staten Island."]

It seems to have been assumed that Colonel Francis Lovelace, Governor of the Province of New York, was the son of Sir Richard Lovelace, Baron of Hurley, and was the grandfather of Lord John Lovelace, who died in New York in 1709, (2 Col. Doc. 580, note), until this assumption was questioned by General James Grant Wilson, (2 Mem. Hist. City of N. Y. 94, 96.)

A biographical notice in Hazlitt's edition of the Poetical Works of Sir Richard Lovelace, lends color to General Wilson's theory. Other side lights are thrown upon this shadowy subject by poems and notes included in this collection, which may be found at pages 104, 155, 218, 221, 237, 291 and 293.

The authority of the News Letter of April 12th, 1657, (Col. Fr. Lovelace and His Plantation on Staten Isld., p. 58), is doubtful upon its face. It states that "Colonel Lovelace, brother of Lord Lovelace, is to succeed Colonel Nicholas in the government of New York." But the name of the governor was Nicolls, not Nicholas. If the News Letter writer blundered in stating the name of the governor, may he not have blundered in stating the relationship of the new appointee?

The historical question as to the identity of Governor Francis Lovelace appears to be still open.

SPECIMENS EXHIBITED.

Mr. Wm. T. Davis exhibited the following specimens :

1. Yellow gravel sandstone from Todt Hill, showing concretionary structure, presented by Mr. W. A. Galloway.

2. *Rana virgatipes* Cope, from Lakehurst, N. J., a frog which has not yet been recorded from Staten Island, but which may occur here.

3. *Limnobates lineata*, the "marsh treader," captured on Staten Island in a plowed field some distance from any water.

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PROCEEDINGS OF THE NATURAL SCIENCE ASSOCIATION OF STATEN ISLAND.

VOL VIII No 23

MAY 9th, 1903

The regular monthly meeting of the Association was held at the residence of Mr. Read Benedict, West New Brighton.

In the absence of the President and the Secretary, Mr. Edw. M. Strothers was elected temporary Chairman and Mr. O. M. Curtis, acting Secretary.

The Curator reported that arrangements had been made for the delivery to the Association during the coming week of the mineralogical collection of the late Robert T. Robinson and the collection of birds' nests and eggs belonging to Mr. Beverly W. Robinson.

Mr. Wm. T. Davis, for the Committee on Re-naming of Streets and Highways, stated that in accordance with the resolution passed at the last meeting, a typewritten copy of the report presented at that time, had been sent to Mr. George Cromwell.

Mr. Edw. M. Strothers, for the Committee on Parks, reported that according to the daily press, the bill to preserve the Billopp House site, had passed both branches of the Legislature, and only needed the Governor's signature to become a law.

Mr. Alanson B. Skinner read the following paper:

IROQUOIAN INFLUENCE ON THE STATEN ISLAND INDIANS.

About the time of the Dutch governors of New Amsterdam, the cry of Mohawk

would have caused the greatest consternation if uttered in one of the many little Algonkin villages in the vicinity, and not without good reason, for when a Mohawk war party arrived it was wise for the inhabitants to emigrate.

The people of Aquehonga were not exempt from such visits, for it is well known that the Mohawks conquered all the Indians in this neighborhood. So far as I have been able to find out, however, there is no record of any Iroquois inroads having occurred on Staten Island in historic times, but that they did occur and that the Mohawks did have considerable influence on the Raritans of Staten Island is unmistakably proved by those imperishable implements of clay and stone, which the red men were fortunately unable to take with them on their journey to the "Happy Hunting Grounds."

A stone arrow head, a net sinker, a hammer stone, is much the same article the world over. Arrow heads from Denmark are nearly indistinguishable from those from Ohio; while an arrow head from Australia may look exactly like one from New York. Thus it is with the stone implements, but with the pottery—there we have the whole story.

Though the Mohawk style of chipping flint was identical with that of the Raritans, yet their higher scale of civilization rendered the Iroquois pottery beautiful in form and decoration. while

that of the Algonkins though often handsomely marked never reached that perfection in decoration and form, for which the Iroquois pottery was noted, until after they had been subjugated by the people of the Long House.

In Popular Science News for September, 1903, Mr. Percy M. Van Epps in his article 'Aboriginal Remains in the Mohawk Valley,' said: "The peculiar and characteristic notched angle which is clearly shown in the illustration, is to Archaeologists a veritable 'hall mark' of Maquas, or Mohawk origin."

Iroquoian pottery is usually characterized by the raised rim, narrowed neck and rounded bottom of the vessels, which frequently are ornamented by rude representations of the human face, a peculiarity which has never been reported, to my knowledge on Algonkin pottery, to the present time. The Algonkin pottery possesses a flat rim, is not bottled necked, and the base of the vessel usually terminates in a point.

The first of my specimens is a fragment of the rim of a typical Algonkin vessel collected on the Milliken site at Mariners' Harbor. It is ornamented with incised lines and dots, and the edge is notched.

The next specimen is a fragment from the same place, this is also a portion of an Algonkin vessel, ornamented with rows of incised lines, which run up over the brim and down on the inside for about an inch and a half. The rim turns outward slightly, but this is not an uncommon feature.

Fragment number three, is also from the same site. It is a portion of a thin, well made, but undecorated vessel.

Specimen number four, like the one preceding is of the Algonkin type. It is a piece of an exceedingly thick, chunky and plain pot. There are faint and indistinct notches running along the edge. It is possible that this may be a fragment of an exceedingly old vessel.

It comes from a site on Western Ave., Mariners' Harbor, and is the largest pottery fragment which I have seen from that place.

Number five, is a portion of a rim of a pot, showing Iroquoian influence. The raised and flaring rim is fairly distinct. It has been ornamented by pressing the edge of a scallop shell in the clay while yet soft. This specimen comes from the Milliken site.

Number six, is a small fragment of an Iroquoian pot rim from Watchogue, which possesses the Mohawk notched angle. It is ornamented by incised lines.

Number seven, is a similar fragment from the same place.

The next specimen is the major portion of a vessel from the shell heap, on Tuinissen's or Old Place Neck. It is a combination of the Algonkin and Iroquoian styles. It has a constricted neck possesses a slightly raised rim and a rounded bottom. It is ornamented by impressing upon the wet clay a stick wrapped around with grass.

The small fragments of pottery from Watchogue, both Iroquoian, possess almost unique features, one is evidently part of a vessel which possessed a raised knob or handle, the other was undoubtedly marked with a pottery stamp, as is clearly shown by the regularity of the decoration.

Last, but not least, is a part of the rim of an Algonkin vessel excavated on the Milliken site, which possesses the unique feature of crude, but easily recognized raised human faces.

I believe that this feature is not only unique in Staten Island specimens, but so far as I can learn, has never been reported from Algonkin territory before.

Mr. Wm. T. Davis exhibited specimens and presented the following :

NOTES ON STATEN ISLAND INSECTS.

Thecla irus Godt. Since the local list

of butterflies was published recording this species from Watchogue, it has been taken on April 24th, in the woods between the Black Horse tavern and Richmond, and also in some numbers near Four Corners.

Papilio ajar Linn. This butterfly was seen June 14th, 1902, at Tottenville, and Mr. Fulda captured two specimens at Concord on Aug. 5th, 1902. The insect has been recorded from the Island, July 5th, 1886 and June 30th, 1889.

Nisoniades martialis Scudd. This is an addition to the local list of butterflies. The specimen shown was collected on the hill west of the Clove Valley near the Cave by Mr. Oscar Fulda, May 3d, 1902. It is not an uncommon insect in the Highlands of New Jersey.

Protoparce rustica Fabr. A specimen of this sphinx moth was captured at electric light near Four Corners, and is now in the collection of Mr. Charles Benedict. It is an addition to the local list published in these Proceedings, Jan. 10th, 1903.

Apithes agitator Uhler. This cricket is common in the South, and has been reported from Burlington and Cape May Counties, New Jersey. The female specimen shown was captured on September 21st, 1902, at Ward's Point, Tottenville. This is the most northern locality so far reported for the species. With this addition the Staten Island list now embraces fifteen species of crickets.

Mr. Davis exhibited as an addition to the local Flora a dried specimen of the Black Swallow-wort (*Cynanchum nigrum* L.) collected at Rossville. He also showed a living ant-lion, found that afternoon at Watchogue, where its pit had been constructed in the soft material collected about the base of a large stump.

At the close of the meeting, Mr. Charles Benedict exhibited his collection which embraces many interesting objects collected on the Island.

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PROCEEDINGS OF THE NATURAL SCIENCE ASSOCIATION OF STATEN ISLAND.

VOL. VIII, No. 24.

OCTOBER 10th, 1903.

The regular monthly meeting of the Association was held at the residence of Mr. Howard R. Bayne, New Brighton, with the president in the chair.

The following were elected active members:

Brewster Boyd, West New Brighton.

W. L. Rowlands, New Brighton.

A. C. Knothe, New Brighton.

W. A. Suydam, New Brighton.

Mr. Wm. T. Davis read the following paper on

STATEN ISLAND CAVES.

Until recently, the only cave on Staten Island has been the one in the serpentine rock not far from Britton's upper pond and near the reservoir of the Crystal Water Company. Though a pole can be thrust to a considerable distance beneath the rock, yet the more open part is hardly large enough to afford shelter to one person in a rain storm. This cave is not a natural one, but according to local history, it and some other holes on the hillside were dug, shortly after the Revolution, by Housman and his negro servant in their search for gold.

A much larger cave, and one of more recent origin, is to be found on the shore near Huguenot. It is in the drift material of the cliff, which the sea is gradually washing away, and owes its origin to the storms and high tides

that have beaten against the cliff, and its preservation to a nearly horizontal layer of iron-cemented clay and pebbles. This last has been the main support of the roof, while the sea has washed a small hole in the cliff by means of which one may enter a considerable chamber within.

When Mr. Philip Dowell and I measured the cave last June, we found the entrance about twenty-one inches high, by four and a half feet broad. The floor of the cave was covered with sand washed in by the sea. In one direction, it measured about ten feet, and in the other, nine feet, and the roof was four feet from the sandy floor.

The severe summer storms have since enlarged the entrance somewhat; more shells and sand have been washed upon the floor, and the sea will shortly destroy our largest Staten Island cave.

Mr. Davis also read the following necrological notice:

AUGUSTUS RADCLIFFE GROTE.

The daily papers of September 24th announced the death in Germany of Augustus Radcliffe Grote, to whom American entomology is particularly indebted for his studies of the native moths, of which he described several hundred species.

Since 1884 he had resided in Germany, either in Bremen or Hildesheim, and

he died in the latter city on the 12th of September. For two considerable periods, he made his home on Staten Island. His father, who was one of the promoters of the first Staten Island steam railroad, resided on a pleasant country place on Rockland Road, near Egbertville. The place is still attractive with its many fine ornamental trees, its pond and nearby woodland. It was here that Mr. Grote, as a little boy, commenced his entomological studies.

In a letter written in 1886, he says: "I am myself the first Staten Island entomologist so to speak. I made my first collection in 1856, gumming the bluebottle flies on cardboard. I then had not heard of pins or that there was such a thing as a science and literature of insects." Later a kind old German gardener told him about insect pins, some of which were procured.

In the preface to his "Check List of North American Moths", published in May, 1882, Mr. Grote mentioned the time when as a boy he "caught *Cicindelas* on the south beach of Staten Island."

He was for some time director of the Buffalo Academy of Natural Sciences, but upon leaving Buffalo came to Staten Island. This, if I remember correctly, was in 1880. He resided at New Brighton in one of the Jackson cottages, on the retired lane that leads from Franklin Avenue. The surroundings of this cottage were very pleasant, and he had his large collection of moths arranged on two low shelves in one corner of the living room or library. It was here that he received many scientific friends—Prof. C. H. Fernald, Mr. Henry Edwards, and others. When a box of moths was taken to him he would name them at sight, giving the authorities as well as the scientific names.

In this line, he was wonderfully expert and accurate. He used to tell me

what danger his collection was in, as the little cottage was liable to be destroyed by fire and the type specimens lost. Oddly enough, his prediction regarding the cottage came true, but not until he had sold his collection to the British Museum and removed to Germany.

Mr. Grote was not only a lepidopterist of authority but was the author of "Genesis I, II;" "The New Infidelity;" "Rip Van Winkle: A Sun-myth and Other Poems"; "Education and the Succession of Experiences," and four popular science lectures, delivered in the course before the Buffalo Society of Natural Sciences. In spite of "The New Infidelity" he seemed kindly disposed toward the church near his home, and on one occasion made it quite a donation.

In a letter from Germany in 1886, he writes: "I have written a pamphlet on our Hawk Moths, besides a lot of papers for *Canadian Entomologist*, and a lot of music. The bands here play some of my pieces. The Emperor, and the Duke of Coburg, have accepted my dedications."

Dr. Arthur Hollick exhibited a map of Silver Lake, on which the depths and sub-aqueous contours were indicated, and read the following memorandum:

DEPTH AND FORM OF THE SILVER LAKE BASIN.

At the meeting of this Association on September 13th, 1884, a paper was read by Mr. L. P. Gratacap, in which he gave the results obtained from a series of soundings in Silver Lake. The greatest depth noted was 16 feet 6 inches.

Recent investigations, in connection with condemnation proceedings for Silver Lake Park, have included measurements of the depth of the lake, which has been plotted in a series of rectangles, with the figures represent-

ing the depths at regular intervals. By joining the points of equal depth we are able to form quite an accurate idea of the general shape and contour of the basin, as well as to locate the place of greatest depth. This latter is towards the southern or outlet end, where there is a maximum record of 18 feet 6 inches, included within the limited 18 foot contour.

The steepest slope is on the side nearest the Richmond Turnpike, where the pavilion stands. The growth of aquatic and swamp vegetation has encroached considerably on the northern and eastern borders for many years, and recent grading and road building have resulted in silting up and shallowing a considerable area in the same vicinity.

The morainal barrier at the outlet end is quite narrow and steep and a comparatively small cut would result in completely draining the basin.

Dr. Hollick also read the following reviews of

RECENT LITERATURE RELATING TO STATEN ISLAND.

I. *Bulletin No. 32, New York State Museum*, (Feb. 1900), pp. 1-187, with map and 91 figures, is devoted to a report on the "Aboriginal Occupation of New York", by W. M. Beauchamp. In the list of localities where relics have been found there is only the following brief reference to Staten Island on, p. 139.

"Richmond County. A few implements and shell heaps with some graves have been reported near Tottenville at the south end of Staten Island".

It is quite evident that the author was not acquainted with our Proceedings and that he did not seek very hard for information, as there is no reference whatever to the Island in the list of authorities. It is to be hoped that the report may be of more value or interest

to other sections of the State than it is to ours.

II. In the *N. Y. Tribune* of April 19, 1903, almost a whole page is devoted to illustrated accounts of our Poor-House farm and of the park system proposed by the Chamber of Commerce. In connection with the latter is a reduced copy of the map showing the suggested park areas.

III. In the *N. Y. Tribune* of May 24, 1903, in an illustrated article on the Emerson Centennial celebration in New England, is an account of "The Snuggery", the former residence of County Judge William Emerson, on Richmond Road, where he was often visited by his brother, Ralph Waldo Emerson, and by Henry D. Thoreau. Together they gave the name of Concord to the settlement in the vicinity, in memory of the New England city of that name, with which they were so intimately associated.

"The Snuggery" was destroyed by fire in 1855 and Judge Emerson subsequently built the residence now known as the Unger estate. One of the illustrations is a picture of the front of this house.

MINOR NOTES.

Mr. E. C. Delavan presented a glaciated pebble of hard serpentine, obtained from a caisson excavation at Pine and William Streets, New York City.

Mr. A. B. Skinner exhibited fourteen specimens, representing fragments of indian clay pipes, collected at various localities on Staten Island.

The Curator reported upon mycological papers and photographs received from Mr. C. G. Lloyd of Cincinnati, Ohio, and suggested that the following memorandum should be printed in the Proceedings:

"We send you these publications in hopes that we can interest you in picking up and sending to us puff balls

hat you meet. It is a simple matter both to collect them and to send them. Simply pick them up, dry them thoroughly, wrap them in tissue paper and send enclosed in a box to prevent crushing in the mails. Then mark them as "samples without commercial value" and the postage you will find will be very slight, only nominal. We are particularly anxious to get a knowledge of the puff balls of your country and

hope that you will co-operate with us in supplying us with material from which we can work. If you will collect the "puff balls" we will undertake to see that they are described, published and illustrated in a satisfactory manner, and that due credit be given you.

C. G. LLOYD,

224 W. Court St.

Cincinnati, Ohio, U. S. A."

APR 30 1904

Supplement to

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Staten Island Names

Ye Olde Names and Nicknames

By WILLIAM T. DAVIS

PUBLISHED BY THE
Natural Science Association
NEW BRIGHTON, STATEN ISLAND, N. Y.

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PROCEEDINGS OF THE NATURAL SCIENCE ASSOCIATION OF STATEN ISLAND

VOL. VIII. NO. 25. (Special No. 23) OCTOBER 1903
SUPPLEMENT TO
STATEN ISLAND NAMES, YE OLDE NAMES AND NICKNAMES
By WILLIAM T. DAVIS

As part of its Proceedings for March 14th, 1896, the Natural Science Association published a pamphlet on Staten Island names. This was received with some favor by the public, and was incorporated in Vol. 1 of Mr. Morris' Memorial History of Staten Island. Since 1896 many old newspapers have been examined, and the records at Richmond have been more carefully gone over. Several residents * have also taken an interest in the subject and have communicated additional information, and from these, and various other sources sufficient material has been accumulated to warrant the publication of a supplement to the original pamphlet. To that pamphlet and the accompanying map, drawn by Mr. Charles W. Leng, we refer the reader for information and the further elucidation of facts mentioned in the present supplement.

As an illustration of how names change, even in a few years, we give the following list of residences of "Men drafted from Richmond County." It appeared in the *Richmond County Gazette*, March 1st, 1865, and no doubt at that time Bay View, Inside Shore and the other places mentioned were well known localities.

Braisted, Elias N.; Watchoak
Braisted, Cornelius; Watchoak
Bonner, John; Bay View
Cahill, Pat; Bay View
Carroll, Daniel; Bay View
Caron, Mark; Van Vleck's.
Carmany, Pat; Petticoat Lane
Ellis, J. M.; Inside Shore
Gagagan, Mathew; Rocky Hollow
Grant, Alexander; Sandy Road
Sampson, Thomas; Rose Hill
Totten, James, Jr.; Mildam Road
Woglom, John; Inside Shore

Present Name.

Watchogue or Bloomfield.
Watchogue or Bloomfield.
Clifton.
Clifton.
Clifton.

Rockland Avenue.
Kreischerville and vicinity.
Richmond rd at foot of Grymes Hill.
Van Pelt Ave., Mariners' Harbor.
Manor road near Egbertville road.
Richmond Valley, near Wier's Mill.
Kreischerville and vicinity.

* I wish to particularly acknowledge the assistance of Mr. Frank W. Joline of Tottenville.

The following mentioned maps to be found in the Lenox Library and the library of the N. Y. Historical Society are interesting and are additions to the original list.

"A plan of the City of New York and its environs to Greenwich, on the North or Hudsons River, and to Crown Point, on the East or Sound River, showing the several streets, public buildings, docks, fort and battery, with the true form and course of the commanding grounds, with and without the town. Surveyed in the winter 1766. John Montresor, Engineer." [New York Historical Society] On the part of Staten Island shown there is "Watson's Ferry," "Old Town," "New Town" and "Narrows."

"Sketch of the position of the British Forces at Elizabeth Town Point after their return from Connecticut Farm, in the province of East Jersey under the command of His Excell'y Lieut. Gen'l. Knyphausen on the 8th of June, 1780, by John Hills, Lieut. 23rd Regiment and Asst. Eng." [New York Historical Society]. There is shown a "Bridge of Sloops for the Passage of the Army" between Staten Island and New Jersey near Elizabeth Town Creek. Also a road to Decker's Ferry leading to the above mentioned bridge. (See "Decker's Ferry.")

In the Lenox Library there is an atlas of "Charts of several Harbours, and divers parts of the coast of North America from New York south westwards to the Gulph of Mexico. . . . composed and published by command of Government for the use of the Royal Navy of Great Britain by J. F. W. Des Barres, Esq., 1780. In this collection there is "A chart of New York Harbour . . ." on which is shown "The Kilns," equal Kill van Kull and "Bluff Point" at the Narrows. With the chart is published various views among them "The Narrows (between Red and Yellow Hook on Long Island and the East Bluff of Staten Island) bearing S. b. W."; "New York with the entrance of the North and East Rivers"; "The Light House on Sandy Hook, S. E. one mile." These views were "Published according to act of Parliament, Oct. 4th, 1777, by J. F. W. Des Barres, Esq.

"The City of New York as laid out by the Commissioners with the surrounding country. By their Secretary and Surveyor, John Randal, Junr, 1814." [New York Historical Society]. Only part of Staten Island is shown.

"Atlas of the State of New York," Simeon DeWitt, 1829, contains "Map of the counties of New York, Queens, Kings and Richmond, by David H. Burr." On this is shown Tompkinsville, Quarantine Ground, Fort Tompkins, Fort Richmond, Fort Hudson, Richmond, Elm Tree, Old Blazing Star Ferry, Princes Bay Light House, Ferry (at what is now Tottenville). In a later issue published in 1839, the following places are mentioned in addition to those given: Port Richmond, Cityville, Sailors' Snug Harbor, Stapleton, Rossville, New Ferry (at the present Linoleumville), Bulls Head, Ship Yards (between the present Mariners' Harbor and Port Richmond).

"Map of New York Bay and Harbor and the Environs, founded upon Trigonometrical Survey under the direction of T. R. Hassler," Washington, U. S. Coast Survey, 1846? (Lenox Library). "Battery Morton" is shown on the above mentioned map as lying back of the light house at the Narrows. On John Randal, Jr.'s map of 1814, it is called "Mortar Battery."

PART I

NAMES FOR STATEN ISLAND AND SURROUNDING WATERS.

Cherry Island. Isle of Mines. "On some of the early Spanish maps it (Staten Island) is called 'Cherry Island,' but this name must date sometime posterior to its settlement, as we have no evidence that cherries were indigenous. The Portuguese sometimes called it 'The Isle of Mines,' under the conviction that the precious metals existed here in great abundance, if they could only be found, and that they had faith in their existence, is evident from the fact that they sunk shafts in several places remains of which are still to be seen. An old author, De Crique—I will not vouch for the correctness of the orthography—says that he had a brother who resided on the Island for several months, and prosecuted mining very successfully, having accumulated a large 'pile,' which he might have increased indefinitely, had it not been for the persistent opposition of the spirits and hobgoblins which protected the treasure, and which neither holy water, nor the image of the Virgin, thrice blessed, had any power to annihilate."—*Richmond County Gazette*, July 11th, 1866.

Sandy Hook Bay. Same as Lower Bay. Sandy Hook Bay is shown on "Map of an estate at Old Town in the town of Southfield, County of Richmond, Staten Island, belonging to the late Stephen Keteltas, Sr., 1846."

POINTS AND COVES.

Bluff Point. At the Narrows. Shown by Des Barres, 1780.

Abner Decker's Point. The bluff at the end of the Shore Road at Mariners' Harbor—the "jumping off place." "On the public road leading from Port Richmond to Abner Decker's point."—From deed of Aug., 1874—description of 1807. " . . . road leading from Port Richmond to Abner Decker's point at a place called Holland's Hook." *Richmond County Gazette*, July 17th, 1867.

Winant's Point. On the Sound at the mouth of Prall's River between Bass and Hanne's Creeks.

Wandel's Point. " . . . also eleven acres and a half acre of meadow lying against Thomas Wandels poynt," north side of Staten Island. 1730. Liber C. p. 442.

Bedell's Point. "Likewise five acres of salt meadow lying and being or known by Bedell's Point or along the said point." 1771. Liber E. p., 41. John Bedell's Point is the point of upland that runs into the meadow where Ketchum's Mill Pond Brook joins Bedell's or Simonson's Creek. Perhaps John Bedell's Point is not the same as "Bedell's Point."

Long Neck Cove, at the Mouth of Cannon's Creek. " . . . bounded to the Northeast by the highway and on the northwest by Long Neck Cove, and west-erly by the land of Abraham Connors and southeast by the land of Eve Decker. . . ." 1731, Liber C. p. 394.

KILLS, CREEKS AND BROOKS.

The Chum. Logan's Spring or Harbor Brook. The late Mr. Geo. W. Wright, of West New Brighton, contributed the following: "The brook you call the Harbor Brook passes through the premises of the late Geo. Wm. Curtis and was by his guest, Mr. Nathaniel Hawthorne, years since, named 'The Chum.' I think this name antedates yours. I think Mr. Hawthorne found in his rambles that his brook and the one through Mr. Goodhue's united before running into the Kills, and as they both passed through the same channel to the Kills suggested the term 'Chum.' Mr. Curtis is my authority for the name. The statement above suggesting the name is simply my fancy."

Soria Brook. An old name for the brook that flows through the grounds of the Sailor's Snug Harbor. See Proceedings Nat. Science Assn., Vol. VII p. 55.

Thompson's Creek. The second small creek southwest of Old Place Creek. Though comparatively broad at its mouth it only extends a short distance into the meadow.

Oyster Creek. " . . . with ten acres of salt meadow lying at Karles Neck in the County and province above st to the southward of a certain creek commonly called and known by the name of the Oyster Creek." 1721 Liber C.p. 152.

Van Cleft Creek. "A certain tract of salt meadow in the town of Westfield, beginning at a stake on the bend of a certain creek known by the name of Van Cleft Creek, on the north side of said creek, and running from thence north 65 degrees and 30 minutes east 11 chain and 26 links along a range of stakes to the line of the land of Jesse Morgan . . . thence along said river [S. I. Sound] and Great Fresh Kill Creek to said creek known by the name of Van Cleft Creek, including an island of salt meadows known by the name of Van Cleft Island, thence along said creek called Van Cleft Creek to the southernmost side thereof . . . till opposite the place of beginning. From thence crossing said creek to the place of beginning. Being bounded on the north by the said creek and meadows of the said John Journeay, on the east by land of Jesse Morgan, on the south by meadows of Charles Morgan and Winant Winant and on the west by said river and Great Fresh Kill Creek." *Richmond County Gazette*, May 10th, 1865.

Shell-heap Creek. "All that certain piece or parcel of land situate lying and being in the town of Northfield, County of Richmond and State of New York on the northerly side of the Turnpike road from the Bull's Head to the Blazing Star ferry, bounded as follows, to wit: On the northwest by the land of William Pettit, on the southeasterly by the said Turnpike Road, on the southwest by land of Elias Decker and on the west by Shell-heap Creek and Staten Island Sound . . ." 1873. Deeds, Liber 103, p. 57.

Carle's Neck Run. " . . . bounded on the east by the Great Swamp; to the north by the land of Edward Jones, formerly John West's, and west by the land of John Crocheron, and south by Carle's Neck Run, and the land of Isaac and Bart Simonson." 1785. Liber E. p. 355.

Johnson's, Mills' or Benedict's Creek. Names for what is now generally called Benedict's Creek, near Rossville.

Perny Creek. "Beginning at Lacounts Creek and on the west side of the mouth of Perny Creek, and running along said Perny Creek northeasterly to another little creek branching from said Perny Creek, from thence along said little creek by the line of Henry Slaughter's land crossing to Lacounts Creek, from thence along said Lacounts Creek to the place of beginning." Description of 1810. Deeds, Liber 187, p. 384.

Lacount's Creek. " . . . near the old Blazing Star in the town of Westfield . . . also a piece of salt meadow situate in the place aforesaid, beginning at the middle of an old bridge formerly across Lacount's Creek . . . " 1791, Liber E. p. 442.

"Beginning at Lacount's Creek and on the west side of the mouth of Perny Creek . . . " Description of 1810. Deeds, Liber 187, p. 384.

Kingsbury's Brook. An old name for Uncle Ed. Wood's Brook, Tottenville.

Paul Gurne's Creek; Hanchemas Brook. "Beginning at a stake standing in the meadow by the creek called Paul Gurne's Creek thence along the said creek to a place commonly called Hanchemas Brook thence up the said brook to the land of Abraham Mannet. . . . to Sandy Brook." 1725, Liber C, p. 205.

"Running west from the creek commonly called Paul Gurney's Creek one hundred and thirty rods to the highway of Capt. Christopher Billopp. . . . " Liber C, p. 324, 1727; also 1721, Liber C, p. 329; 1735, Liber D, p. 83; 1749, Liber D, p. 471.

Devil's Elbow. "All that certain piece of salt meadow lying and being in said Westfield on the west bank of Lemon Creek so called, bounded and described as follows, to wit:

"Beginning at a stake sixty feet from the bend of said creek below the 'Devil's Elbow' so called . . . " 1788, Deeds, Liber 141, p. 112.

ISLANDS AND MEADOW ISLANDS.

Great Meadow Island or Great Island of Mark Disoway. " . . . piece or parcel of meadow at Staten Island in the County of Richmond, aforesaid at a place called the Great Island of Mark Disoway . . . " 1728, Liber D, p. 42.

"All that certain lot of salt meadow, known by the name of Du Bois' Meadow, situate on the northwest side of Staten Island in the County of Richmond being on the southeast part of a tract of meadow commonly called the Great Meadow Island . . . Bounded on the west by the meadow of the said Nathaniel Johnson, on the north and northwest part by the meadow of the said Abraham Monee, and part by Mark's Creek, on the east and southeast by another creek, which meets or runs into Mark's Creek, and on the south by the sound. . . . " 1792, Liber E, p. 348; also 1792, Liber E, p. 349. Mark Disoway's Creek is the one now known as Mark's Creek, Watchogue.

Little Island. "All that certain lot piece or parcel of salt meadow land situate lying and being in the town of Northfield in the County and State aforesaid, and commonly known by the name or designation of 'Little Island' formerly the property of Asbury Crocheron, deceased, and is bounded

westerly by the Fresh Kill Creek leading to Carl's Neck, southerly and easterly by Peter's Creek so called, and northerly by a creek or ditch on the line of meadow of David Latourette and contains about four acres of land be the same, more or less." Description of 1855. Deeds, Liber 207, p. 279.

Ridgway's Island. "Also one lot or parcel of salt meadow formerly belonging to Joseph Decker, situate on the east side of the neck, bounded . . . southeasterly by a small ditch that separates it from meadows called Ridgway's Island." 1886. Deeds, Liber 187, p. 500.

Peteets Island. " . . . a small island of salt meadow or marsh on ye north side of a creek called ye Fresh Kill, containing three acres. Beginning at ye mouth of a small creek lying east by north from an island of upland formerly called Peteets Island. 1722, Liber C. p. 100.

Van Cleft Island. At Great Fresh Kill and Staten Island Sound. See Van Cleft Creek.

REEFS, ROCKS, SHOALS, ETC.

Mill Reef. "A beacon on the Mill Reef, opposite New Brighton, is very necessary, if we may judge from the fact that almost every day vessels are seen there fast upon the rocks. Coal boats, of which a great number go up the river laden from Elizabethport, are frequently detained a long time and seriously injured, there being nothing whatever to warn them of their danger." *Richmond County Gazette*, March 14, 1860.

Flat Rock. "Also a certain parcel of meadow lying on the north side of the Fresh Kills near the mouth thereof beginning near the Flat Rock. . . being bonded by the west to the Sound on the north on the meadows not-layed out and on the east and south by the small creek aforesaid and the Fresh Kill containing sixteen acres and two rods, there being five acres allowed for creeks, ponds and marshes as by the said patent. . . ." 1708, Liber D, p. 112.

Great Rock. " . . . on the south side of the Fresh Kills beginning at a great rock near a gom tree that is marked on the south side on the King road running from thence upon a direct line to an old white oak stump and chestnut stump standing together with a stone planted by the stumps and from thence running east to the line of Francis Orselston and from thence running upon a direct line north to the Ready Meadow and from thence west to a marked stump with a stone by the stump and from thence to the tree where it began always excepted out of the same the Kings road and one acre of ground granted by the said John Belleville to the French Congregacon." 1735, Liber D, p. 141.

The Big Rock. Half way down the "Gully" is the largest exposed rock in Tottenville.

Yates' Hole. A deep hole in Fresh Kills just above Lake's Meadow Island.

HILLS.

Hamilton Hill. Crossed by the present Prospect Avenue, New Brighton. "On Wednesday morning last the barn of Mrs. S. T. Jones, in Hamilton Hill, back of New Brighton, was destroyed by fire." *Richmond County Gazette*, October 18th, 1865.

Retreat Hill. The hill in front of the Seamans' Retreat, Stapleton, over which the shore road passes. Portions of the hill were removed during 1861, 1862 and later. Mentioned in the *Richmond County Gazette*, May 7th, 1862, April 1st, 1863 and July 31st, 1872.

Brimstone Hill. On the westerly side of the Richmond road near the head of Vanderbilt avenue. Recorded in *Libers A*, p. 247 and 11, p. 563 of *Lispensens*, at Richmond, in connection with the lands of John Wandel, Abraham Blake and Richard O. Cary.

Ferguson's Hill. A part of Fox Hill crossed by Belair road and Tompkins avenue, Clifton.

Strawberry Hill. A name given by Judge Emerson and his neighbors to an open space where strawberries grew on the slope of Ocean Terrace near the Douglass road.

Susan's Bluff. The eminence on the southerly side of the Clove, formerly owned by Judge Wm. Emerson, who called it Susan's Bluff in honor of his wife. Judge Emerson was a brother of Ralph Waldo Emerson and lived on the slope of the bluff toward the Richmond road, where Thoreau visited him in the "Snuggery" during the summer of 1843. Susan Haven is described as the wife of Wm. Emerson in the *Sepoy* of Nov. 5th, 1859.

Castleton Hill. ". . . northeast side of the highway leading from the Moravian Church to the Richmond Turnpike, over Castleton Hill, commonly called Toad Hill . . ." *Richmond County Gazette*, May 31, 1871.

Buck's Hill. ". . . to the lots at Karle's Neck, and from thence bounded by the rears of said Karle's Neck lots, as they severally bear to the place where it first began, abutting and bounded upon the road or highway towards the north, and upon lands held by the said John Beathy on Buck's Hill formerly possessed by Samuel Oliver, and land now in the tenure or occupation of Richard Conner towards the east, and upon the land held by the said John Hillyer as aforesaid towards the southeast and upon land belonging to the said Matthias Sweem, formerly Hubbards, towards the south and upon the said rears of the Karle's Neck lots aforesaid towards the west and containing . . . about one hundred acres." *Liber D*, p. 299, 1757. (See *Mills Dale* or *Buck's Hollow*).

Big Hill; Richmond or Latourette's Hill. ". . . Road leading from the neck down the Big Hill (so called) to Richmond. . . ." 1799, *Liber E*, p. 435.

Latourette's Hill is mentioned in *Richmond Co. Gazette*, Dec. 10, 1862.

Nigger Hill. At Giffords on the westerly side of Canavello's Lane near the Amboy Road.

Weir's Hill. "Change in Election District. . . along the Amboy Road to Weir's Hill, up Weir's Hill to Sharrott's Corner, and thence westerly down to Kilmeyer's store, and thence down the lane to the river by Henry Sleight's." *Richmond County Gazette*, October 19th, 1864. (See Sharrott's Corner).

Cherry Hill. At the foot of Sleight Street, Tottenville.

Albert's Bluff. Near the Billopp house, Tottenville.

Katie's Knoll. About two hundred feet west of South Avenue, Mariners' Harbor and on the south side of the railroad track. Named after Katie Van

Pelt. Much of this knoll was used to partly fill in the adjacent swamps by the King Drop Forge Company in 1896.

VALLEYS AND HOLLOWS.

The Gully. A ravine running westerly through Biddle's Grove, Tottenville, to the shore of the Staten Island Sound.

Christopher's Gully. In the valley of Uncle Ed. Wood's Brook, near the Cove, Tottenville.

SPRINGS, PONDS AND SWAMPS.

Aunt Suckey Baker's Spring. The little stream that once flowed from this spring crosses the Todt Hill Road and unites with the Moravian Brook. Many years ago the spring was enlarged, walled up and changed into a well, but in old time its water was considered to have curative power. Aunt Suckey Baker's maiden name is said to have been Jose' and Old Jose' once owned this mineral spring on the "Iron Hill."

Aunt Nellie's Spring. Named after Aunt Nellie Storer and situated on the shore near Kreischerville. This spring is covered by very high tides.

Iron Spring. "He said he lived between the Iron Spring and 'Skunk's Misery' and had walked five miles to take a look" (at the locomotive). *Richmond County Gazette*, March 28th, 1860.

Winant's or Rossville Spring. On the southerly side of the Fresh Kill Road in Rossville village. It is really an overflow from a well situated a few hundred feet up the hill.

Boiling Spring. In a brook near the Pines, Tottenville. Also a second "Boiling Spring" on the flats at Uncle Nat Dubois', north of Mill Creek on the Sound. This spring is submerged when the tide is half flood to half ebb.

Hessian Spring Mill-pond. Formerly occupied a portion of the valley between the present Jersey Street and Westervelt Avenue, New Brighton. The following is from the *Mirror* of February 3d, 1838: "On Thursday last five or six men were engaged in cutting ice for the New Brighton Association on the mill-pond just behind the Hessian Spring, at this place, the ice gave way and they were precipitated into the water. All were rescued but one, Mr. William Ford, who was drowned. We learn that the members of the Association, with a promptness highly praiseworthy, have resolved to subscribe a fund amply sufficient to keep the family of the deceased well provided for during the winter." (See "Hessian Spring.")

Great Pond. Probably Silver Lake. "And also a certain pond commonly called the Great Pond, bounded by the lands of Wilhelmus Freeland and others, and reserved in the grant of Thomas and Walter Dongan for the lands surrounding the said pond, and also a copper and iron mine in the lands now possessed by Walter Dongan, likewise reserved in the grant of the said Thomas, in as full and ample a manner as in the said grants they were reserved." 1794. Liber E. p. 343.

Great Pond. Appears to be the wide part of Great Kill near where the old Lake mill stood. ". . . lot of meadow at the Great Kill containing ten acres and ten acres of swampy Reedy meadow by the Great Pond" 1714. Liber C. p. 44.

" . . . beginning by the water side sixty Rodd to the west of the Great Pond, and stretching into the woods northwest twenty-five degrees . . .
 . " 1722. Liber C. p. 128.

" Together with one lott of salt meadow at the Great Kills containing eight acres and eight acres of ready swampy meadow adjoining unto the meadow of Daniel Stilwell by the Beach to the Great Pond . . . " 1776. Liber E. p. 84.

Dissosway's Mill Pond. Mentioned in 1774, Liber E. p. 57, and probably the pond known in 1859 and later as Weir's Mill Pond, at Mill Creek, Tottenville. (See Le Conte's Corner).

Bogardus Pond. On the westerly side of the Rossville Road, near Sharrott Road.

Negre Pond. In the woods north of Sharrott Road. It is the pond of Little Africa and is near the Kaolin Pit Road.

Blue Factory Pond. A name for the artificial pond at the Ultramarine Works, Rossville.

Bay View Pond. "A skating pond called Bay View Pond has been opened outside of the village of Tottenville, under the direction of Mr. Christopher. It faces Princes Bay and is well prepared for the enjoyment of those who may frequent it. Four ice boats and a refreshment room add to the attractions." *Richmond County Gazette*, Jan. 3d, 1866.

Garretson's Pond. At Garretson's Lane between Aspinwall Avenue and Slight Street, Tottenville.

Biddle's Pond. At Biddle's Grove, Tottenville.

Pinefield Pond. In the "Pines" near the railroad track, Tottenville.

Storer's Pond. On Abram Storer's farm and near Storer's Lane, Tottenville. Used by Staten Island Rapid Transit Railroad for water supply.

Dongan's Mill Ponds. Col. Dongan had two mills, an upper and lower. 1759, Liber D. p. 326. 1764, Liber D. p. 514. 1774, Liber E. p. 59. 1792, Liber E. p. 248. Apparently Dongan's Upper Pond was known later as Blake's or Brook's Pond, and the lower as Bodine's Pond.

Quarry Ponds. At the Upper Quarry, near Graniteville. Small rain water ponds in depressions where the rock has been blasted.

Sleighter's Pond. Close to the easterly side of the north end of the Big Hummock at Watchogue.

Snake Pond. Opposite to where the Watchogue Road is joined by the road that leads to the Big Hummock—on the north side of the Big Hummock Road.

Logger-head Pond. Close to the south end of the Big Hummock at Watchogue. This name may have been applied to the pond from the snapping turtles that occur in it; the true marine Logger-head turtle probably never entered the pond, though it borders on the salt meadows.

Round Pond. A small circular depression about thirty feet in diameter in the woods on the edge of Old Place Meadow, south of Snake Pond. Dry in summer. Snake or Dead Man's Pond has lately been drained.

Blacksnake Pond. Near Aspinwall Avenue, Tottenville. Filled in several years ago.

Willow Swamp. The Amboy Road crosses Willow Swamp at Sandy Brook.

The "Quarantine Road near the Willow Swamp bridge," which crosses Sandy Brook, is mentioned in the *Richmond County Gazette*, Feby. 19th, 1862.

Cranberry Bogs. Natural bogs containing cranberry vines at Sleight Street and Sprague Avenue, Tottenville.

Uncle Aaron Van Name's Swamp. At Sprague Avenue, Tottenville.

MEADOWS, FIELDS AND PLAINS.

The Meadows. Foot of Aspinwall Avenue, Tottenville. Also called Bay View Skating Park early in the sixties, and for more than twenty years the principal place for ice sports.

Rotten Meadows. On the Old Place Meadows between Sedge Pond Creek and Vroom Creek. There are also Rotten Meadows on the New Jersey shore nearly opposite Dongan Island.

Tan-fat Field. A tannery once stood in the field near the upper part of Burgher Avenue, West New Brighton, and the place was in consequence known as the Tan-vat Field. After a time, when the tannery was gone, the careless small boy corrupted the name into the "Tan-fat Field."

PART II

FERRIES AND LANDINGS.

Bedell's Ferry. Apparently Situated at the Narrows. " . . . bounded southeasterly by said first-mentioned road [Old Town Road], southwesterly in part by said road and in part by land now or formerly of Leonard Parkinson, northerly by the road leading to Bedell's Ferry, and northeasterly in part by land now or formerly of said Vanderbilt, and in part by other land of the said Samuel R. Smith, formerly of Rebecca Vreeland . . . " *Richmond County Gazette*, Nov. 23, 1859. "All that certain lot . . . of woodland . . . in the town of Southfield . . . on the northerly side of the road leading from the village of Richmond to the landing formerly known as Bedell's Ferry in the town of Southfield." *Richmond County Gazette*, Dec. 12th, 1866.

Decker's Ferry. "R'd to Decker's Ferry" is shown on John Hill's map of 1780. The ferry must have been situated near the end of the present Shore Road at Mariners' Harbor. Decker certainly had another ferry at what is now Port Richmond. "A ferry was established across the Kill Van Kull from Staten Island to Bergen Point in 1764. It was at the present site of Port Richmond. In 1777 it was known as Decker's Ferry; afterward it was called Ryer's and still later Mersereau's." Bayles, p. 684. Decker's Ferry is shown to the east of the Dutch Church on the old Church Road (Richmond Avenue), on Bew's map, 1781.

Old Point Ferry. At Holland Hook. "Also that tract of land and meadow in Northfield aforesaid lying along the road leading from the Old Point Ferry to Port Richmond Ferry, fronting Newark Bay." *Richmond County Sentinel*, Aug. 24th, 1878.

ROADS AND LANES.

Ocean Avenue. Now Cebra Avenue. "Cebra or Ocean Avenue." Beers, 1874.

Shore Road. Occupied about the same ground as the later constructed Boulevard at South Beach and shown on "Map of an estate at Old Town in the town of Southfield, County of Richmond, Staten Island, belonging to the late Stephen Keteltas, Sen'r, 1846. (See Shore Trail).

Old Sand Road. Now Fingerboard Road.

Summit Avenue. Same as Todt Hill Road.

New Road. Amboy Road. "Bounded northerly by the land of Ephraim Van Gelder, westerly by the land of Daniel Stillwell and southerly by the New Road or Amboy Road." 1762, Liber D. p. 497. New Road also mentioned 1789, Liber E., pp. 140 and 150; 1791 Liber E., p. 199.

Johnson's Lane. Leads from the Amboy Road between New Dorp and Tyssen's Lane to the Old Mill Road. Shown on Walling's map, 1859, and on Drripp's map, 1872.

Latourette's Lane. Leads from the Forrest-Hill Road, or that port of it once called Mill Lane, to the road that leads over the Fresh Kills bridge.

Mill Lane. That part of the Willowbrook or Forrest-Hill Road leading from Poverty Lane to the old Ketchum Mill. An old name, but still occasionally used.

Rose Hill Avenue. That portion of the Manor Road from Bradley's Road to the Egbertville or Saw Mill Road, is occasionally called Rose Hill Avenue (Rosewood Avenue, Higginson, 1860) and also the Poor House Road.

Seaman's Lane. An old name for at least that portion of Seaside Avenue laid out by Henry I. Seaman and commencing at the Fresh Kills Road.

Perkin's Lane. Leads from the Amboy Road at Annadale to the shore. Shown by Walling, 1859, and Dripps, 1872.

Seguine's Lane. Leads from the Amboy Road at Annadale to the shore. Shown by Walling, 1859, and Dripps, 1872.

Britton's Lane. Leads from the Amboy Road near Annadale to the shore. Now Harrison Avenue.

Marshall Lane. "Also one other road in the said quarter or west precinct known by the name of Marshall Lane. Beginning by the meadow side at Cedar Bush and running from thence as the road now runs between the land of John Marshall, deceased, and the land of the widow Parlee until it comes to the rear of the Smoaking Point Lotts so called, or to the highway laid out at the rear of said Lotts and from thence as said road runs between the land of Anthony Stoutenburgh and John Mersereau, John Simonson and others till it comes to the main road that leads to Billopp's Ferry, said road to be opened two roads on the west side." 1774. Liber E. p. 58.

"Bounded westerly by the road called Marshels Lane . . ." 1784, Liber E. p. 449.

Mill Dam Road. Now East Broadway, which leads across Mill Creek, at Tottenville. "All that certain lot of land . . . on the northerly side of a new road or avenue called William Street leading from the Amboy road to the Mill Dam Road, so called, and within one-half mile from Totten's Dock." *Richmond County Gazette*, Jan. 2d, 1867.

Middletown Road. Now Washington Street and East Broadway, Tottenville.

Totten Road. Now Main Street, Tottenville. "Main or Totten Street," Beers, 1874.

Biddle's Road. Led from Amboy Road towards Ward's Point through property of Henry Biddle.

Garretson's Lane. Ran from Amboy Road along easterly line of Garret Garretson's farm to the Meadows, Tottenville.

Storer's Lane. Widened and lengthened into Fisher Avenue, Tottenville.

Uncle Nicky Corson's Lane. Now Brehant Street, Tottenville. "All that certain lot, piece or parcel of land situate, lying and being in the Town of Westfield, aforesaid being a part of the land of which Isaac P. Sprague, died seized, bounded and described as follows: Beginning on the northwest corner of said lands at the intersection of the southerly line of Amboy Road and the easterly line of a Two Rod road sometimes called Brehant Lane and running thence easterly along the said southerly line one hundred feet to land now of William E. Joline, thence . . . to land of Jacob A. Cole . . ." 1886. Deeds, Liber 170, p. 343.

Uncle Ben Joline's Lane. Ran through his farm at Tottenville, from "Uncle" Nicky Corson's Lane to Raritan Bay.

Uncle Jake Manee's Lane. Ran through his farm at Tottenville, from Uncle Nicky Corson's Lane to Raritan Bay.

Old Eliza's Lane. Ran through her farm at Tottenville, from Uncle Nicky Corson's Lane to Raritan Bay.

Mills Road. " . . . along the road commonly known as the 'Mills Road' to the public road leading to Rossville." Description of 1810. Deeds, Liber 187, p. 384. Probably named after John Mills, whose meadow adjoined the land described.

Mecklenburg Road. A nickname for Sharrott Road, which leads from the Rossville Road near Bogardus Corners into Kreischerville village.

Kaolin Pit Road. An old wood-road that leads from Bogardus Corners to the Fresh Kills Road, near Kreischerville.

River Road. "For Sale. The estate occupied by Mr. James Parker, situated in Castleton, Staten Island, on the River Road, between Sailors' Snug Harbor and Factoryville . . ." *Richmond County Gazette*, July 8th, 1863. (See Shore Trail). "River Kill Van Kull" is mentioned as early as 1786. Liber E. p. 202. (See Het Kill van Het Cull).

Fish Lane. "Also lot of land assessed to Mary J. Cullen, situate lying and being in said village [New Brighton], bounded and described as follows, to wit: Commencing at a point on the southerly side of the Richmond Terrace, distant 50 feet from the westerly side of Fish Lane . . ." *Richmond County Sentinel*, March 23, 1878.

Tompkins Avenue. Grove Street. Names for part of the present Castleton Avenue, West New Brighton. "All that certain parcel of land . . . on the southwest corner formed by the intersection of State Street and Castleton Avenue (formerly Grove Street) . . ." Liber 130, Deeds p. 232. "All that certain lot of land situated . . . on the north side of Tompkins Avenue (sometimes called Grove Street) . . ." Liber 138. Mortgages p. 153. "The hill opposite Mr. Sexton's on Tompkins Avenue, near Factoryville, is being cut down by the corporation of the village of New Brighton, and the soil removed to places near the shore." *Richmond County Gazette*, Sept. 1st, 1869.

Mersereau Street. Now Broadway, Port Richmond. "All those . . . lots at Port Richmond . . . on Mersereau Street (now Broadway)." Liber 194. Deeds, p. 566.

Divison Avenue, Church Road, Mechanics' Avenue, Etc. "Portrichmond. The Board of Trustees have resolved to make the following changes in names of streets: Division Avenue to Jewett Avenue; Simonson Avenue (down shore) to Simonson Place; First Avenue to Grace Church Place; Heberton Street to Heberton Avenue; Church Road to Richmond Avenue; Phebe Street to James Street; Mechanics' Avenue to Lafayette Avenue; Steamboat or Ferry Street to Ferry Street. It was also resolved that signs with the names of street thereon should be placed at the street corners." *Richmond County Gazette*, Sept. 2d, 1878.

Smith Street. Now Cottage Place, Port Richmond.

Lydia Street. Now Bond Street, Port Richmond.

Quarry Road. Now John Street, which leads to the Bennett Trap-rock Quarry on the Morning Star Road, Mariners' Harbor.

Mariners' Harbor Road. Now Summerfield Avenue.

Drift Way. "North Side of Staten Island in Richmond County in the Province of New York bounded Northerly by Kill Van Cull, Easterly partly by a Messaue and piece of Land now belonging to Anthony White partly by Land belonging to Ann Groesbeck partly by a Certain Tract of Land purchased by Anthony W. Waters in his life Time of Samuel Ten Eick hereinafter Mentioned and Described and partly by Land late belonging to Abraham Barchalon deceased Southerly by the Wood Land of Jacob Corson and Westerly by the Highway as the Same now runs which said Highway was formerly Called the Drift Way." 1775, Liber E. p. 71. "Highway formerly called the Drift," is mentioned in connection with the Soldiers' Lots in the same indenture.

LOCALITIES, SETTLEMENTS AND VILLAGES.

Precincts or Divisions. "The following Road or Highway was Entered on Record the 15th day of October in the year of our Lord one thousand seven hundred and seventy-three.

"The following Road appears to be layed out in the North Division of the County of Richmond, the 20th Day of September, 1773, Richmond County, S. S. John Batey of the South Division, Abraham Cole of the West Division, Bornt Simonson and Richard Lawrence of the North Division, Daniel Corson of the Manour, Commissioners appointed for laying out and Regulating of Roads and Highways Do lay a Road in manner and from following: Beginning at the Northeast Corner of Christian Corson's fence now in possession of Abraham Spier, Running from thence with a direct line to the south past Corner of John Taylor and thence with the same Direct Line to the Land of Samuel Dehart, from thence northerly by the Line of the said Dehart Two Rods and from thence to Reverse the first given Line at Two rods Distance at the North side to the place of Beginning.

"To the County Clerk, we the under Written Commissioners Desire of you to Enter this return upon Record.

John Batey,
Abraham Cole,
Bornt Simonson,
Daniel Corson.

"Entered this day abovesaid By Paul Micheau, Clk." Liber E. p. 55.

"South Precinct." 1773, Liber E., p. 51.

"North Precinct." 1776, Liber E., p. 87.

These Precincts or Divisions correspond to what was later known as Westfield, Northfield, Southfield and Castleton.

Sagoddiochguisatt. "Certain Tract or Parcell of Land Lying and being at Sagoddiochguisatt, which by deed of gift has been granted unto the said John Mangilson by the Maquase Indians in the year 1681-2 the said Land Running from the marked tree whereon ye name of the sd John Mangilson Stands and also the mark of the Maquase Indians unto the Creek that Lyeth

Westward the line of the sd Land Running into the woods direct North upon a straight Line, Together with all houses, Barnes, stables, orchards, fencings, Feedings” Dated Feby. 10th, 1698-9. Liber B. p. 322.

Johannes Megapolensis, Jun. Account of Maquas or Mohawk Indians.

The Mengwe or Iroquois Indians. Morris' History of Staten Island, Vol I. p. 13.

South Side Lotts. “Bounded on the west by the said Abraham Winant, on the north by Joshua Mersereau and James Seguin, on the east by Dowa Johnson and on the south by the Rear of the South Side Lotts.” 1772. Liber E. p. 42.

Tosamoca Lot. “Beginning at the southwest part of the south precinct at a place called Tosamoca Lot, all the beach not granted before the lot of the Patent that the said Smith claims his Right by with the small Island called Oyster Island so running along and including the beach to the Land now in possession of Captain Ward joining the North Precinct” 1771, Liber E. p. 188.

Sign of the Ship. “Also a certain piece or parcel of Woodland lying near the Sign of the Ship in the Township of Westfield in the county aforesaid on the North Side of the Road that leads from the Sign of the Ship to the Fresh Kills.” 1789, Liber E. p. 299.

“A place called ‘The Sign of the Ship.’” *Staten Islander*, May 2d, 1896.

This tavern is said by Mr. John H. Garretson, of Green Ridge, to have been situated on the Amboy Road, nearly opposite to Fox Avenue, at Huguenot. The proprietors name was Halle.

Bloomingdale. Said to be an old name for the valley at Pleasant Plains through which Sandy Brook flows. (See Bloomingdale Road).

Billopp's Lots at Prince's Bay. “Whereas the said Thomas Billopp in and by his last will and Testament among other things have Divided and Bequeathed unto his Daughter, the said Mary Davis, by her then name of Mary Farmer a Certain Tract of Land Lying and being on the South side of Staten Island in the provence of New York in Richmond County Called Lott No. 7 or by such or the like kind of name at or near a Certain place there Called Princes Bay Bounded with sea unto the said William Davis and Mary, his wife, and their heirs and assigns All that the said Tract of Land and Premises hereinbefore and hereinafter more particularly mentioned that is to say Lott Number 1 called Huckles Berry Lott No. 2 called Two Dogwoods Lott No. 3 called Blackoak sap Lott No. 4 called Sassafrace Lott No. 5 called Birch sap Lott No. 6 called Blake and Lott No. 7 called (no name given)” 1765. Liber E., p. 24.

Outside and Inside. Among the fishermen and others at Tottenville the shore and adjacent property along Raritan Bay from The Meadows to what is now the foot of Beach Street is often called “Outside,” while “Inside” is that portion along the shore of the Sound from Biddle's Dock to the Mill Creek. All of that part of the village north of the Amboy Road is sometimes included in the latter term.

The Old Elm. Stands at the edge of the Bluff, Tottenville.

The Elm Tree. Near Mt. Hermon Presbyterian Chapel, afterwards Mt. Hermon Institute, Tottenville.

LeConte's Corner. " . . . to continue as said road runs to the place commonly called LeContes Corner, from thence as said road runs turning to the Left hand and so round the head of Dissosaway's Mill pond to the main road that leads to Billopp's ferry." 1774. Liber E. p. 57.

LeConte's Corner seems to have been at the present Kreischerville.

Sharrott's Corner. " . . . on the southerly side of the public road leading from Kilmever's Hotel to Sharrott's Corner, and known as the New Road, about two miles from Rossville." *Richmond County Gazette*, September 24th, 1862. See Weir's Hill.

Back Settlements or Wood Lotts. " . . . being in the aforesaid county of Richmond near Smoaking Point, Bounded west by Peter Woglum, East by John Woglum and North by the River Containing sixty-one acres Including two roads one from Smoaking Point to Billop's ferry the other from the Last Mentioned road up to the Back Settlements or Wood Lotts (so called) as they are severally laid out and Entered on Record. 1763, Liber D. p. 594.

Point Lot. " . . . The third is a Lott, known by the name of the Point Lott, near the Lott aforesaid at fresh Kill . . ." 1796, Liber E. p. 397. Also mentioned Liber E. p. 431. Mr. John H. Garretson thinks this to be the land projecting into Bedell's Mill Pond at Fresh Kills or Green Ridge.

Ferry Stairs. At Holland Hook. "Bounded on the north by the Causway leading to the Ferry Stairs, on the East, by Meadows belonging to Garret Post; on the South by Meadows which formerly belonged to Christian Garrebrants deceased, and on the West, by the Bridge Creek." 1797, Liber E. p. 371.

Manorton. A proposed name for a part of West New Brighton or Factoryville, as it was formerly called. *Richmond County Gazette*, Dec. 10th and 17th, 1862.

Acre of Mystery. A name for the burying ground on the Poor House farm. A great many unknown persons are buried there.

Battery Morton. Shown on T. R. Hassler's Coast survey map (1846?) as lying back of the light house at the Narrows.

Little Dublin. A hamlet on Wilson Avenue at Eltingville. Wilson Avenue is connected with the Amboy Road by a short lane known as the Wood Road.

Poke Town. A nickname for the small settlement on Poverty Lane between the Willowbrook Road and New Springville. Named after the Green Heron or Poke.

Arentsville, Eel Town, Etc. "We trust that no such excitement will ensue as arose upon the question of calling the village 'Tottenville' or 'Arentsville.' The atmosphere of Tottenville and its vicinity in those days was of a very unwholesome and sulphurous character. Even Eel Town, Huckleberry Grove, 'Pison Pint,' Devil's Pit, Crow's Ridge, and other small villages were all affected by it." *Richmond County Gazette*, Dec. 28, 1870.

Mt. Hermon. Locality about the junction of Amboy Road and Biddle's Road. A Presbyterian chapel, afterwards a school, bearing that name was built there about forty years ago.

Slam's Row. On the east side of Griffin Street, Tompkinsville. "A stabbing affray occurred on Saturday night, in the neighborhood of 'Slam's Row,' in which a man named Fitzpatrick was severely injured." *Richmond County Gazette*, March 20, 1861.

Jew's Buildings. An account of the burning of a barn, in the rear of the "Jew's Buildings," at Clifton, is given in the *Richmond County Gazette*, Oct. 28th, 1863.

Dutch Block. A nickname for a row of houses on the west side of Jersey Street, New Brighton, about two hundred feet south of Richmond Terrace.

Buffalo Corners. Brown's Saloon, once situated on the corner of Bennett Street and Cottage Place, Port Richmond, displayed a buffalo's head over the door that gave the name to the corner. In the *Richmond County Sentinel* for Jan. 24th, 1877, there is an account of a strange phase of insanity exhibited by a person living at "Buffalo Corners in Port Richmond."

PART III

NEW REFERENCES TO NAMES MENTIONED IN PAMPHLET OF 1896.

Prince's Bay. "Prince's Bay, so called because a British prince once landed there during the Revolution, is a barely perceptible indentation of the coast." *Richmond County Gazette*, Feby. 20th, 1867.

Narrows. "A quarter of a century ago, when I dwelt at the 'Narrows'—it was not called Clifton then, but all the shore between Van Duzer's and the forts was embraced in the general term of the 'Narrows,' Stapleton had not been born nor Clifton dreamed of . . ." *Richmond County Gazette*, March 7th, 1860.

Sandy Brook. 1720, Liber C. p. 104; 1726, Liber D. p. 81.

Abraham Tappen's Brook. Mentioned as lying to the west of Blazing Star, now Rossville, in 1774. Liber E. p. 57. (See 'Gene's or Tappen's Creek').

Mark's Creek. 1784, Liber E. p. 91; 1792, Liber E. p. 348.

Daniel's Neck. " . . . also twenty acres of Meadow lying and being on Staten Island aforesaid on the southwest side of a Certain place Commonly Called Daniel's Neck to the northeast and east of a Certain Creek which bounds the Meadow ground now in the possession of the said Mark Dusachoy." 1734. Liber C. p. 454.

Big Hummock (Beulah) and Little Hummock are situated on Daniel's Neck. (See Great Meadow Island).

Tunesson's Neck or Black Point. "Against John Tunessin's Neck on the northwest side of the said Island." 1729. Liber C. p. 437.

" . . . commonly called or known by the name of John Tuneson's Neck, granted to the said John Tuneson by a Patent from Anthony Colven, Goven' of the Province of New Amsterdam, now New York . . . " 1741-2. Liber D. p. 359.

"Whereas Anthony Colve Govern' General of New Netherland under their High Mightinesses the Lords States General of the United Netherlands, and his serene Highness the Prince of Orange, Did by Virtue of a Patent or Grant, bearing Date the 10 Ober, 1674, Give and Grant unto John Tunisson Van Pelt a Parcel of Land, Scituate upon Staten Island known by the name of Black Point being the first Point to the Southward of Dirck De Noorman, bounded on the south side by the Creek, on the West side by the Kill Van Koll on the North side by the Creek, on the East side by the Woods of the Lords States Gen', with free Egress at the said Woods." 1752. Liber D. p. 375.

"John Tunesson's Neck or Black Point." 1743. Liber D. p. 394.

Old Place is on Tunesson's Neck.

Palmer's Run, Dongan Creek, or Bodine's Mill Creek. "Dongan Creek Causeway" is mentioned in the *Richmond County Gazette*, Sept. 24th, 1873. See Causeway. "Bodine's Mill Creek" is mentioned in legal notice in *Richmond County Gazette*, April 12th, 1876, and in other similar notices.

Burnt Island. " . . . near a certain place known by the name of the burnt Island." 1784, Liber E. p. 449.

Dongan's Island. "Also a certain Island of Salt Meadow situate in the Sound between Jersey and Staten Island commonly called Dongan's Island, containing by estimation One Hundred acres." 1794, Liber E. p. 343.

Big Hummock or Beulah Land. " . . . On the Westerly side of Old Place Creek, Beginning at the Southwesterly corner of Old Place Creek and the Hummock (so called) . . ." 1869. Liber 82; Deeds, p. 488.

Split Rock. "During the low tide on Thursday caused by the extraordinary winds, Split Rock, which is just below the dock of the Corinthian Club House, at Tompkinsville, was visible, some two feet of it appearing above the water. This rock is well known to navigators and is not often seen." *Richmond County Sentinel*, Dec. 31st, 1887.

Towd, Todt, Toad or Dongan Hill. The following is from a letter in the *Staten Islander*, Dec. 14th, 1898:

Ralph's Island. "Island of meadow sold by Abraham Ralph to David Mersereau. 1799, Liber E. p. 436.

TO THE EDITOR.

SIR: Pray use your powerful influence in stamping out the senseless awkward name "Toadt" applied to a beautiful Staten Island hill. The great co-operative movement in England had its small beginning on Toad lane, Rochdale. Visiting the place the secretary told me the name was a corruption of "the old," "Towd." That section was settled by Hollanders, who said "Towd Man" and "Towd Fellow," for "The Old Man," and "The Old Fellow."

That part of Staten Island southwest of the Fort was settled by Hollanders and was known as the Old Town or Dorp, as there is now New Dorp. There is also Old Town road or lane leading from the Richmond road. The Old Town probably became corrupted to "Towd Town" and the hill back of it to "Towd Hill." I have seen it spelled in an old document "Toude Hill." The name had no relation to an animal except in sound. To avoid such a suspicion it has been misspelled in various ways, even the senseless barbarous "Toedt." Pray help stamp this misnomen out and call it Towd or Toude or Dongan Hill. . . . W.

Clifton, S. I., December 10. 1898.

Similar letters to the above appeared in the *Richmond County Gazette* many years ago, and in the *Staten Island Gazette* and *Sentinel*, Oct. 24th, 1883. Both of them were written by J. O. Woods.

Crips' Back. "Also all that certain lot of land . . . in the Town of Westfield near the Fresh Kill, the same being the southwesternmost part of the tract or lot of land called Crips' Back . . ." *Richmond County Gazette*, May 10th, 1865.

Thrifty Valley. "The fire on Saturday night was in a small house in Thrifty Valley, near the Quarantine walls." *Sepoy*, March 12th, 1859.

Watering Place. "Tract, piece or parcel of Land situate and being in Richmond County upon Staten Island near the Watering place on the East Side of the said Island." 1719, Liber C., p. 55. Also 1726, Liber C., p. 251.

Cruser or Boiling Spring. "The curious natural phenomenon known as the boiling Spring [is] at Elliotteville; a spring from which bubbles of gas continually escape in such profusion as to resemble in appearance the operation of boiling." *Richmond County Gazette*, Dec. 17th, 1862.

Elliott's Pond or The Rink. Formerly a large dense swamp called Biddle's Swamp and later Kingsbury's Swamp.

Great Swamp. 1717, Liber C. p. 63; 1726, Liber C. p. 223, and p. 308; 1793, Liber E. p. 206.

Fresh Meadow. "Tract or piece of Land beginning at a white Oak Tree Standing or growing by a Rock by the side of a Small fresh meadow bearing northerly from a pond of water commonly called the fressh pond which white oak Tree is one of the Marked Trees of Philip Wells." 1721. Liber C. p. 85. Also mentioned in 1731, Liber D. p. 8.

Great Kill Meadow. Mentioned in 1786, Liber E. p. 170, and in advertisement in *Richmond County Gazette*, Oct. 15th, 1862.

Ryers' Ferry. 1784, Liber E. p. 166.

Decker's Ferry. 1792, Liber E. p. 248.

Watson's Ferry. 1762, Liber D. pp. 497 and 501.

Darby Dryles Ferry. 1774, Liber E. p. 60. " . . . formerly called Watson's Ferry," 1785, Liber E. p. 94.

Simonson's Ferry. 1774, Liber E. p. 62.

Billogg's Ferry. 1763, Liber D. p. 594; 1774, Liber E. pp. 57 and 60.

King's Highway. 1727, Liber C. p. 256. King's Road. 1730, Liber C. p. 387. 1735, Liber D. p. 141. "King's highway or Amboy Road." 1762, Liber D. p. 481. The present Richmond Road is the one usually referred to as the King's Highway.

Corsen Avenue. "Corsen Avenue sometimes called Vanderbilt Avenue . . . " A Peter Stuyvesant owned land there. *Richmond County Gazette*, Aug. 10th, 1859.

Egbert's Lane. Mentioned by name in Liber E. p. 1, 1765. Tunis Egbert, Abraham Egbert and Henry Latourette, executors of the last will and testament of James Egbert, sell land to Capt. John Gifford.

The Glebe. "Plantation Called Duxbury's Glebe." 1765 Liber D. p. 609.

Quarantine. The appraisement in 1800 of the Quarantine Ground at what is now New Brighton, by fire commissioners is to be found in Liber E. p. 454. Thirty acres of land, valued at \$5,500, were taken.

South Shore, South Side or South Quarter. " . . . situate Lying and being in Richmond County aforesaid in the South Quarter so Called . . . " 1736, Liber D. p. 25.

Commons. " . . . at Karles Neck at the Fresh Kill upon Staten Island in the County of Richmond in the Province of New York . . . and bounded South East and South west by the Commons . . . " 1728, Liber D. p. 125.

Nieuwe Dorp or New Town. "Tract of Land situate lying and being at new town allias new dorp at the South side of Staten Island." 1719, Liber C. p. 108. Called "New Durrop," 1762, Liber D. p. 591; 1786, Liber E. p. 107.

"New Durrup Lane." 1769, Liber E. p. 15; 1790, Liber E. p. 301. *Richmond County Free Press*, April 26th, 1834.

Governor's Lott. "All that certain parcell of Land lying at the New Diropp on the South Side of the sd County formerly called the Governor's Lott. . . . " 1714. Liber C. p. 48.

" . . . bounded to the south east by the meadow to the northeast by the high way to the north west by the Land of the Governors to the south west by the Land of Abraham Lutine . . ." 1720. Liber C. p. 418.

Old Place. 1799, Liber E. p. 438.

Edgewater. Notice is hereby given, pursuant to statute, that an application will be made to the next legislature of the State of New York to incorporate the town of Middletown, and so much of the town of Southfield as lies northerly of the New Dorp Lane or such other portion as may be thought best into a village to be called "Edgewater." Dated Oct. 1st, 1865. *Richmond County Gazette*, Dec. 13th, 1865.

Edgewater, New Brighton, Port Richmond. "The charters for the incorporation of a part of Middletown under the name of the village of Edgewater, a part of Castleton under the name of New Brighton, and a part of Northfield under the name of Port Richmond, have been carefully revised and sent to the legislature, where it is supposed they will be passed and become laws of the State." *Richmond County Gazette*, March 14th, 1866.

London Bridge, Bull's Head. "In a somewhat sequestered spot near 'London Bridge,' on our island, a youth and maiden dwelt from childhood to that tender age, when eyes enquire 'what's trumps,' and hearts respond." *Richmond County Gazette*, June 15, 1864. Also mentioned in the *Gazette* May 21, 1862.

Marshland, Green Ridge. "At a meeting of the citizens of Marshland, it was decided to call the place Green Ridge, the boundaries extending from Valley Forge to Gifford's Lane." *Richmond County Gazette*, March 24th, 1875.

Camp Washington. This name is older than the war of the Rebellion, as appears from the following: "We have received an invitation to attend the game of the Quickstep Baseball club, which will be played on Thursday, Nov. 24 (Thanksgiving Day), at Camp Washington. Game called at half past one o'clock." *Richmond County Gazette*, Nov. 23, 1859.

Camps. Camp Lafayette, New Dorp. "Camp Herndon, on the Stapleton Flats." *Richmond County Gazette*, Sept. 11th, 1861. Staten Island railroad notice: "Stopping at Camp Scott, Garretson's Lane, New Dorp (Camp Yates) . . ." *Gazette*, Sept. 25, 1861. "Camp Leslie, Clifton Park," Simonson avenue, Clifton. *Gazette*, Oct. 2, 1861. "Camp Low at Elm Park." *Gazette*, Nov. 6, 1861.

Yellow Row. "A building at Factoryville known as the 'Yellow Row' near the residence of Col. Barrett was struck by lightning during the storm on Thursday last." *Richmond County Gazette*, Aug. 9th, 1865.



- | | |
|--------------------------------|--|
| 1. The Meadows. | 16. Uncle Jake Manee's Lane. |
| 2. Garretson's Lane. | 17. Old Eliza's Road. |
| 3. Mt. Hermon. | 18. Pinefield Pond. |
| 4. Biddle's Road. | 19. Biddle's Pond. |
| 5. The Elm Tree. | 20. Christopher's Swamp. |
| 6. The Old Elm. | 21. " Gully. |
| 7. Elliott's Pond. | 22. Kingsbury's or Uncle Ed. Wood's Brook. |
| 8. The Gully. | 23. Cranberry Bogs. |
| 9. The Big Rock. | 24. Albert's Bluff. |
| 10. Storer's Lane. | 25. Uncle Aaron Van Name's Swamp. |
| 11. Storer's Pond. | 26. Garretson's Pond. |
| 12. Boiling Spring. | 27. Blacksake Pond. |
| 13. " " | 28. Cherry Hill. |
| 14. Uncle Nicky Corson's Lane. | |
| 15. Uncle Ben. Joline's Lane. | |

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PROCEEDINGS
OF
The
Natural Science Association
of Staten Island.

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NEW BRIGHTON, N. Y.

1905.

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<i>Melosira</i>	10	<i>Polynices heros</i>	40
<i>Meleagris gallopavo</i>	40	<i>Polypodium vulgare</i>	22
<i>Mesodon albolabris</i>	7	<i>Polyporus betulinus</i>	23
<i>Mesodon thyroidea</i>	7	<i>Procyon lotor</i>	40
<i>Micrampelis lobata</i>	41	<i>Protococcus</i>	10
Morning-glory. Ivy-leaved	23	<i>Protoparce rustica</i> ..	15
Mouse. Deer.....	3	<i>Punctum pygmaeum</i>	7
Mouse. Small shrew.....	41	<i>Pupa fallax</i>	7
Mouse. White-footed	3	<i>Pupa ovata</i>	7
Muskrat..	40	<i>Pyrites</i>	44
Mussel.....	40	<i>Quercus Brittoni</i> ..	38
<i>Mya arenaria</i>	40	<i>Quercus Marylandica</i>	38
<i>Myriophyllum humile</i>	23	<i>Quercus nana</i> ..	38
<i>Mytilus edulis</i>	40	Rabbit	40, 47
<i>Nabalus trifoliolatus</i>	22	Raccoon.....	40
Nannyberry.....	33	<i>Ranunculus delphinifolius</i>	23
Narrow-leaved plantain.....	44	Rattlesnake.....	47
Narrow-leaved white-topped aster.....	23	Ray. Sting ..	40
<i>Natica</i> ..	40	Red fox.....	40
Native copper.....	44	<i>Rhamnus cathartica</i>	22
<i>Nirmus thoracicus</i>	38	River birch.....	22
Nut. Hickory.....	40	<i>Rosa canina</i>	22
Oak. Black-jack.....	38	<i>Rumex crispus</i>	44
Oak. Scrub.....	38	Salamander, Four-toed.....	3
Oak. White.....	44	<i>Salix tristis</i>	22
<i>Odocoileus Americanus</i> ..	40	<i>Samia cecropia</i>	15
<i>Orthis testudinaria</i>	2	Sand concretions.....	47
<i>Ostrea Virginica</i>	40	Sandstone.....	27
<i>Ostrya Virginiana</i>	22	Sandstone. Hudson shaly.....	2
Owl.....	36	San José scale.....	47
Oyster.....	40	Sandwort. Sea-beach	23
Parsnip. Wild	44	Scale insect.....	47
<i>Pastinaca sativa</i>	44	Scallop.....	40
Pear conch.....	40	<i>Scepsis fulvicollis</i>	16
Peat.....	25	Schist. Talcose	23
<i>Pecten irradians</i>	40	Scrub oak.....	38
<i>Phragmatobia fuliginosa</i>	16	Sea-beach sandwort.....	23
<i>Philosamia cynthia</i>	15	Sea snail.....	40
Pine. White	50	<i>Sequoia heterophylla</i> ..	36, 46

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<i>Sequoia Reichenbachii</i>	36, 46	<i>Tridopsis fallax</i>	7
<i>Sericocarpus linifolius</i>	23	<i>Tropæa luna</i>	16
Serpentine	2	<i>Trox erinaceus</i>	36
Shad bush	45	<i>Trox unistriatus</i>	36
Shale. Ferruginous	27	Tulip tree.....	15, 44
Shaly sandstone. Hudson	2	Turkey. Wild.....	5, 40
Shrew mouse. Small	41	<i>Ursus Americanus</i>	40
Silicified coral.....	25	<i>Utetheisa bella</i>	16
Silicified wood.....	47	<i>Vallonia pulchella</i>	7
Small shrew mouse	41	<i>Venus mercenaria</i>	40
Snail. Land	40	<i>Vertigo ovata</i>	7
Snail. Sea	40	<i>Viburnum Lentago</i>	34
Snapping tortoise.....	40	<i>Viburnum prunifolium</i>	33
Snow bunting.....	38	<i>Vicia Cracca</i>	23
Soapstone.....	47	Virginia deer.....	40
Soft clam.....	40	<i>Vulpes fulvus</i>	40
<i>Solanum rostratum</i>	23	Walnut.....	44
<i>Spirifer macropleura</i>	8	Water-crowfoot. Yellow.....	23
Starling. English.....	34	White cedar.....	44
Sting ray.....	40	White-footed mouse.....	3
<i>Strobila labyrinthica</i>	7	White oak.....	44
Sturgeon.....	40	White pine.....	50
<i>Succinea aurea</i>	7	White-topped aster. Narrow-leaved..	23
<i>Succinea avara</i>	7	Whitewood.....	44
<i>Succinea totteniana</i>	7	<i>Widdringtonites Reichii</i>	36
<i>Synchæta</i>	10	Wild carrot.....	44
Talcose schist.....	23	Wildcat.....	40
<i>Telea polyphemus</i>	16	Wild cherry.....	47
<i>Terrapene Carolina</i>	40	Wild garlic.....	44
Terrapin. Diamond-back.....	40	Wild parsnip.....	44
Thyme. Wild.....	25	Wild thyme.....	25
<i>Thymus Serpyllum</i>	25	Wild turkey.....	5, 40
<i>Tilia Americana</i>	23	Willow.....	33
Till. Boulder.....	2	<i>Wolffia</i>	19
Timber wolf	40	Wolf.....	5
Toad. Tree	26	Wolf. Timber.....	40
Tortoise. Box.....	40	Yellow water-crowfoot.....	23
Tortoise. Snapping	40	<i>Zea mays</i>	40, 41
<i>Trachelomonas</i>	10	<i>Zonites fulvus</i>	7
<i>Tragopogon pratensis</i>	22	<i>Zonites suppressus</i>	7
Tree toad.....	26		

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PROCEEDINGS

OF

THE NATURAL SCIENCE ASSOCIATION OF STATEN ISLAND.

VOL. IX No. 1.

NOVEMBER 14th, 1903.

The twenty-third Annual Meeting of the Association was held at the Staten Island Academy, with the president in the chair.

Reports of officers for the past year were read and approved, as follows:

Secretary:

Number of members on roll at date of last annual meeting.....	99
Since elected	16
Resigned	8
Deceased	1
Leaving at date (including 1 life and 2 honorary)....	106

Treasurer:

Balance in hand at date of last annual meeting....	\$326.12
Dues received.....	282.00
Subscription to and sales of Proceedings.....	55.80
Interests on deposits in savings bank.....	10.59
Total income	\$674.51

Disbursements:

Printing Proceedings	\$158.61
Library equipment (binding, \$54.75; cases, \$43.50).....	98.25
Public lectures.....	67.55
Postage and expressage. . .	23.73
Subscriptions to periodicals...	6.00

Total disbursements \$354.14

Balance in hand \$320.37

Curator:

Museum:

Number of separate donations....	8
Number of specimens included in the above (approximately)	1,153
Classified as:	
Mineralogy (approximately)	1,000
Zoology (approximately)	150
Geology.....	5
Botany.....	2
Archaeology	1

Library:

Number of societies and institutions from which exchanges were received	44
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Accessions:

By exchange:

Bound volumes	12
Parts of volumes, unbound..	207
Separate papers.. ..	52

By donation:

Bound volumes.....	10
Parts of volumes, unbound..	118

By subscription:

Parts of volumes, unbound...	17
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Ten sections were added to the book cases, and seventy-two volumes were bound.

The Committee on Public Lectures reported upon the success attending the course given in connection with the Staten Island Academy, and called attention to the recent death of Mr.

Cornelius Van Brunt, whose two lectures had been so generally enjoyed.

On motion, the committee was requested to prepare a suitable minute in relation to the matter, for incorporation in the Proceedings. The committee subsequently prepared the following:

It is with sincere regret that we record the death, on October 1st, of Mr. Cornelius Van Brunt, who was so widely and favorably known in the public lecture field, especially by reason of his unique and exquisite series of colored lantern slides, with which his lectures were illustrated.

By this Association he is pleasantly remembered in connection with the lectures on "Wild Flowers in and about Greater New York" and "The Canadian Rockies and Their Flowers", delivered before the Association on March 19th, 1902 and February 5th, 1903, respectively: lectures which were a revelation and a delight to those who were privileged to attend.

Mr. Milo D. Herron, New Brighton, was elected an active member.

The election of officers for the ensuing year was then held, with the following result:

President—Howard R. Bayne.

Secretary—Arthur Hollick.

Treasurer—J. Blake Hillyer.

Curator—C. A. Ingalls.

Trustee—Wm. T. Davis.

On motion, it was *Resolved*: that the regular meetings of the Association during the ensuing year be held on the second Saturday evening of each month, except June, July, August and September.

SPECIMENS EXHIBITED.

Dr. Arthur Hollick exhibited a specimen of Hudson shaly sandstone,

consisting of a mass of *Orthis testudinaria* Dalm., obtained from a large boulder on the west side of Steuben St., Concord, to which attention had been called by Mr. L. W. Freeman. The boulder is a large one and is beautifully glaciated.

Dr. Hollick also exhibited a finely glaciated pebble of compact serpentine and a mass of boulder till, obtained from a caisson excavation in the lower part of Manhattan Island, contributed by Mr. E. C. Delavan.

Mr. Philip Dowell exhibited specimens of *Dryopteris Bootii* (Tuckerm.) Underw. and *D. Goldieana* (Hook.) A. Gray, collected on the east side of South Ave., near Arlington station, representing two ferns not previously reported from the Island.

Mr. Wm. T. Davis exhibited a living specimen of a *Hypnum* moss and read the following memorandum:

In April, 1893, some sand, pebbles and a few sprays of *Hypnum* moss were placed in water in the quart jar here shown. The moss has continued to flourish during the past ten years. On several occasions a snail was dropped into the jar, and when the moss grew too high it was shoved back into the pebbles and sand. The only other change made during these years was to add a little water from time to time, as that in the bottle evaporated.

Mr. Davis also exhibited thin wood sections and a series of photographs of Staten Island trees, prepared by Mr. Romeyn B. Hough of Lowville, N. Y.

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PROCEEDINGS OF THE NATURAL SCIENCE ASSOCIATION OF STATEN ISLAND.

VOL. IX No. 2.

DECEMBER 12th, 1903.

The regular meeting of the Association was held at the residence of Dr. Arthur Hollick, New Brighton.

In the absence of the president, Mr. George S. Humphrey was elected chairman *pro tem*.

The following were elected to active membership :

Llewelyn W. Freeman, Mariners' Harbor.

Wm. B. Grubbe, Port Richmond.

John T. Featherstone, New Brighton.

D. L. Bardwell, New Brighton.

Mr. Wm T. Davis read the following paper :

THE DRUMMING HABIT OF THE WHITE-FOOTED, OR DEER MOUSE.

In *Country Life in America* for November, 1903, Mr Ernest H. Baynes, of Stoneham, Mass., has an article on the White-footed Mouse. He says : "I have recently discovered what may prove to be a means of communication between different individuals of this species. Both when wild and when in captivity, they have a habit of drumming with one fore-foot, either right or left, on a dry leaf, the floor, or the netting in front of a cage; and this signal, if signal it is, is frequently, if not usually, answered at once by any other white-footed mice within hearing. They will also respond quickly to an imitation of the sound, made by scratching with the thumb-nail on a board or any other res-

onant body While drumming, the paw of the mouse is half-closed, with the nails downward, and it vibrates with great rapidity."

"That the white-footed mouse is dumb and communicates with its species by drumming with its toes," is announced as one of his newly-discovered facts in natural history, by Mr. Mason A. Walton, in "A Hermit's Wild Friends; or Eighteen Years in the Woods," which has been recently published.

In these Proceedings for January, 1886, this same drumming habit of the white-footed mouse was commented upon by me as follows: "What I wish to particularly record is a habit which I have never seen mentioned, a way I think which they have of communicating with one another, especially when surprised. This is accomplished by beating one of the fore-paws very rapidly on the floor of the cage, or the limb of a tree, producing a noise similar to the tearing of a small piece of paper."

At the meeting above mentioned, live specimens of the mice were shown, and produced the sound with their fore-paws many times for the benefit of those present.

Mr. Davis also exhibited specimens of the four-toed salamander, preserved in alcohol, and read the following comments :

THE FOUR-TOED SALAMANDER ON STAT-
EN ISLAND.

In 1902 the New York State Museum published a "Catalogue of New York Reptiles and Batrachians," by Edwin C. Eckel and Frederick C. Paulmier, Ph D. In the preface, the Director of the Museum states that information regarding the occurrence and distribution of the various species is much to be desired, and that local faunal lists would be of much value. Further on, under the head of *Hemidactylium scutatum*, the four-toed salamander, we read that it is "probably to be found in this State."

A list of the Reptiles and Batrachians of Staten Island was published in these Proceedings for October, 1884, and it was there stated that the four-toed salamander was to be found on Staten Island. I am able to exhibit four specimens from the Island, and can add that most of the specimens

seen have come from the low-lying places in the hills back of the Moravian Cemetery.

NOTES AND MEMORANDA.

Dr. Arthur Hollick exhibited a mass of native copper, weighing about 6 lbs., which was transmitted by Mr. L. P. Gratacap, with the information that it was alleged to have been found "in the debris of a washout," on Grymes' Hill, in 1880, by Mr. J. G. Ennis. It may be a drift boulder, from New Jersey, or its occurrence may have been due to human agency. The surface shows indications of hammer or chisel marks.

Mr. L. W. Freeman presented an indian celt or skin scraper, found at Mariners' Harbor; also an elongated fragment of shale, beautifully rounded and scratched by glacial action, found by Mr. Peter M. Post at Holland Hook.

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PROCEEDINGS

OF

THE NATURAL SCIENCE ASSOCIATION OF STATEN ISLAND.

VOL. IX, No 3.

JANUARY 6th, 1904.

The regular monthly meeting of the Association was held at the residence of Mr. Wm. H. Mitchill, Port Richmond. In the absence of the president Mr. Mitchill was elected chairman *pro tem*.

Mr. Herbert M. Dunning, New Dorp, and Mr. Benjamin J. Stanton, Tompkinsville, were elected to active membership.

Mr. A. B. Skinner read the following paper:

A SHORT ACCOUNT OF THE ALGONKIN INDIANS OF STATEN ISLAND.

When the early Dutch settlers and explorers arrived in New York Bay they found its shores inhabited by numerous small but fierce and warlike tribes of Indians, of the great Algonkin stock. Manhattan and Long Island, and the nearby mainland, were inhabited by subtribes of the Mohegan or Wolf Indians, while Staten Island and New Jersey were in the territory of the Leni-Lenape or Delaware Indians.

These Indians were brave and warlike. They cultivated some maize and tobacco, but lived largely upon the fish and shell fish which abounded in the vicinity, although they were also good hunters, as the bones of the lynx, bear, wolf, beaver, deer, wild turkey and other animals, so abundant in the shell heaps, prove.

Their lodges were built of bark or salt-meadow grass, and sometimes these rivalled in length the famous long houses of the Iroquois. Some of the thatched houses, however, were not more than thirty feet in circumference and were shaped like a hay stack, with a smoke hole at the top. Around the wall there was a raised seat or couch upon which the occupants reclined or sat.

In order that the lodge might not be burned too frequently, (for according to the Shinnecock Indians of Long Island this was the greatest drawback to life in a thatched lodge) the fire was kept in a deep pit in the center, and almost all rubbish, such as broken pottery, pipes, bones and the like, found their way into this convenient receptacle, where, preserved by the charcoal and the lime from the inevitable oyster and clam shells, they have remained to this day. The discovery of several of these pits has been reported from time to time in our Proceedings. Often in winter, when the ground was frozen too hard for digging, the dead were interred in these all useful pits, and in war time it is probable that many precious articles were concealed in the ashes.

The canoes which our Indians used were made of wood, the canoe birch not growing as far south as this. A tree

was first girdled and allowed to die, then by judicious application of fire and a grooved axe it was felled. Fires were then built upon its upper surface and the charred wood was chopped or scraped away with stone axes, adzes, chisels and gouges, until a hollow shell remained. The graceful shape was given by the same process and the canoe was complete. Sometimes these canoes were forty or more feet in length.

The implements of domestic use were pottery, bark and stone vessels, baskets, wooden spoons and bowls, etc.

For the chase the stone or antler-tipped arrow and a sinew-backed bow, perhaps six feet in height were used. Bone hooks were possibly used in fishing, but the net was probably a far more popular device on Staten Island, as may be inferred from the large number of net-sinkers which have been found.

In time of war the bow and arrows and the stone knife and tomahawk, played an important part, but after the advent of the whites these were set aside for the rifle, steel or iron trade axe, and knife.

In preparing for war the warriors were accustomed to shave their heads, leaving a small crest running from forehead to neck, which stood upright, and gave a most ferocious appearance to the wearer. They probably went almost naked, being clad in but breech clout and moccasins, and were well oiled to prevent an enemy from securing a good hold in close quarters. Horrible devices were painted upon the face and body, to inspire fear, or from a savage idea of ornament.

In the year 1679 when Hans Dankers and Peter Sluyter, the Labadist preachers, visited Staten Island, they made no mention of seeing Indians here, and as the majority had left four years before, in 1675, this is not to be wondered at. Nevertheless they saw many Indians at "Najack" (Fort Hamilton),

and as these Indians (probably the Canarsies) were essentially the same as our Raritans, I may perhaps be forgiven for quoting their description of them.

"We soon heard a noise of pounding, like threshing, and went to the place whence it proceeded, and found there an old Indian woman busily employed beating Turkish beans out of the pods by means of a stick, which she did with astonishing force and dexterity. Gerrit [their guide] inquired of her, in the Indian language, which he spoke perfectly well, how old she was, and she answered eighty years; at which we were still more astonished that so old a woman should still have so much strength and courage to work as she did. We went thence to her habitation, where we found the whole troop together, consisting of seven or eight families, and twenty or twenty-two persons. Their house was low and long, about sixty feet long and fourteen or fifteen wide.

"The bottom was earth, the sides and roof were made of reed and the bark of chestnut trees; the posts or columns were limbs of trees stuck in the ground and all fastened together. The ridge of the roof was often about half a foot wide from end to end, in order to let the smoke escape, in place of a chimney. On the sides of the house the roof was so low that you could hardly stand under it. The entrances, which were at both ends, were so small that they had to stoop down and squeeze themselves to get through them. The doors were made of reed or flat bark. In the whole building there was no iron, stone, lime or lead.

"They build their fire in the middle of the floor, according to the number of their families. so that from one end to the other each boils its own pot and eats what it likes, not only the families by

themselves but each Indian alone when he is hungry, at all hours, morning, noon and night. By each fire are the cooking utensils, consisting of a pot, a bowl or calabash and a spoon, also made of calabash. These are all that relate to cooking. They lie upon mats, with their feet towards the fire on each side of it. They do not sit much upon anything raised up, but, for the most part, sit upon the ground or squat on their ankles. Their other household articles consist of a calabash of water, out of which they drink, a small basket in which to carry their maize and beans and a knife. The implements are, for tillage, merely a small sharp stone; for hunting, a gun and a pouch for powder and lead; for fishing, a canoe without mast or sail, and not a nail in any part of it, though it is sometimes fully forty feet in length, fish hooks and lines, and scoop to paddle with in place of oars.

"All who live in one house are generally one stock, as father and mother, and their offspring. Their bread is maize pounded in a block by a stone, but not fine; this is mixed with water and made into a cake, which they bake under the hot ashes. They gave us a small piece when we entered, and although the grains were not ripe, and it was half-baked and coarse; we nevertheless had to eat it, or at least not throw it away before them, which they would have regarded as a great sin, or a great affront. We chewed a little of it and managed to hide it. We also had to drink out of their calabashes the water which was very good.

"Here we saw the Indians who had come on board the ship when we arrived. They were all joyful at the visit of our Gerrit who had long dwelt thereabouts and was an old friend of theirs. He gave them two jews harps, whereat they were much pleased and at once began to play them, and fairly well. Some of their chiefs—who are their

priests and medicine men and could speak good Dutch—were busy making shoes of deer leather, which they make soft by long working it between the hands. They had dogs, besides fowls and hogs, which they are gradually learning from Europeans how to manage. Toward the last we asked them for some peaches, and their reply was, go and pick some! which shows their politeness! However, not wishing to offend them, we went out and pulled some. Although they are such a poor miserable people, they are licentious and proud, and much given to knavery and scoffing. As we noticed an extremely old woman (not less than a hundred one would think), some saucy young fellows jeeringly answered; twenty years! We observed the manner in which they travel with their children, a woman having one which she carried on her back. The little thing clung tight around her neck like a cat, and was held secure by a piece of duffels, their usual garment."

Dr. Arthur Hollick read the following review of

RECENT LITERATURE RELATING TO STATEN ISLAND.

Catalogue of the Binney and Bland Collection of the Terrestrial Air-breathing Molluscs of the United States and Territories, in the American Museum of Natural History, etc. L. P. Gratacap. Bull. Am. Mus. Nat. Hist., Vol. xiv (Dec 3, 1901) pp. 335-403, pls. xli-xlvi. In this catalog the following species are listed from Staten Island, without however any information in regard to the exact localities:

Zonites (Conulus) fulvus (Drap.) Binney.
Zonites (Gasterodonta) suppressus (Say) Binney.

Ferussacia subcylindrica (Linn.)*

Pupa (Leucocheila) fallax Say.

Pupa (Vertigo) ovata Say.

Strobila labyrinthica (Say) Morse.

Triodopsis fallax (Say)*
Mesodon albolabris (Say) Morse.
Mesodon thyroides (Say) Tryon.
Vallonia pulchella (Muell.) Binney.
Punctum pygmæum (Drap.)*
Succinea avara Say.
Succinea aurea Lea.
Succinea totteniana Lea.*

Those marked with an asterisk (*) are not listed in Mr. Sanderson Smith's "Catalogue of the Mollusca of Staten Island", published as Extra No 5 of our Proceedings, in March 1887, and may be considered as additions to our faunal record.

MINOR NOTES.

Dr. Philip Dowell exhibited the following ferns, not heretofore reported from the Island:

Dryopteris simulata Davenp., collected near Richmond Valley, Oct. 4th, 1903;

Dryopteris cristata marginalis Davenp., collected on the east side of South Ave., near Arlington Station, Oct. 31st, 1903.

Dr. Arthur Hollick exhibited specimens of drift material, collected from exposures along the line of the South Side Boulevard, in the vicinity of Giffords. Amongst the specimens was a fragment of hardened Cretaceous clay, containing plant remains, similar to those which have been found at Arrochar, Prince's Bay and Tottenville. Dr. Hollick suggested that careful search should be made for more of this material as it is likely to carry well preserved leaf impressions.

Mr. John T. Featherstone exhibited fragments of Lower Helderberg limestone, containing well preserved specimens of *Leptaena rhomboidalis* (Hall) and *Spirifer macropleura* (Conr.), collected on the Fingerboard Road.

PROCEEDINGS OF THE NATURAL SCIENCE ASSOCIATION OF STATEN ISLAND.

VOL. IX, No 4.

FEBRUARY 13th, 1904.

The regular monthly meeting of the Association was held at the residence of Mr. Lester W. Clark, New Brighton, with the president in the chair.

The following were elected to active membership :

Dr. S. A. Blan, Port Richmond.

Mr. Lewis Denton, West New Brighton.

Mr. L. W. Freeman presented copies of a series of rain gauge charts, showing the records made by a Draper's self-recording pluviometer for the three heaviest rainfalls of 1903, and, after explaining the way in which the instrument works, read the following paper :

THE EXCESSIVE RAINFALLS OF 1903.

As the excessive rainfalls of 1903 were remarkable in regard to their number, rate and duration, and as the facts here presented are the results of instrumental measurements and personal observations, I have deemed it advisable to put them in such a shape that they can be made a record of this Association.

Without going into the history of reliable rainfall measurements, the subject may be introduced by stating that for years it had been the aim and object of the writer to have an instrument installed on the Borough Building that would automatically register the rainfall.

In a report to our fellow-member, Commissioner of Public Works Louis L. Tribus, on the status of affairs in the Bureau of Sewers, dated Jan. 31st, 1902, it was recommended by the writer that such an instrument be purchased and set up. Commissioner Tribus promptly approved of the measure, and in September, 1902, the instrument was installed and has been in operation since that time.

Subsequently, Deputy Commissioner of Water Supply, George S. Scofield, also a member of this Association, had a similar instrument installed at the pumping-station at Tottenville, and to-day there are in this Borough, two Draper self-registering pluviometers, that automatically record, to the 100th of an inch in quantity, and to the 12th of an hour in duration, the rainfall in their respective localities.

The objects and uses of an instrument of this character are, first: To determine the amount of rain that falls during a given time; which fact, taken in connection with the amount of storm water discharged by water courses, sewers, etc., during the same time, as determined by gauging of such water courses and sewers, furnishes what is technically known as the "run-off," an important and necessary factor in the designing of sewers of the proper sizes and grades for the efficient dis-

posal of storm water, as well as in the estimating of storage for water supply purposes.

Second: The City is frequently made the defendant in suits at law for loss or damage sustained by reason of floods caused by extraordinary rainfalls. There being no bond of sympathy between this instrument and either of the contestants, all biased evidence as to the time, amount, rate and duration of the element that caused the damage, goes down before the impartial record of the rain-gauge.

Third: Every record noted and filed adds a little to the knowledge that may, at some future time, result in the discovery of a natural law that governs the recurrence of periods or seasons of excessive rainfalls. In any event, reliable rainfall data wherever observed, will help to augment the world's knowledge of super-terrestrial forces, about which, though much may be known, much more remains to be learned.

The Storm of June 29, 1903.

The month of June, 1903, may safely be recorded as having been a wet month,—6.98 inches of rain having fallen between June 7th and June 28th. The total fall for the month was 9.97 inches.

This particular storm made its appearance at about the beginning of the season, when storms of like character can usually be expected in these latitudes.

The rain began at 4.36 A. M., and ended at 1.30 P. M.,

Total time of fall, 8 hours, 54 minutes.

Total fall of rain, 2.99 inches.

Between 9 and 10 A. M., 1.46 inches of rain fell. The highest rate of fall was 4 inches per hour, for 3 minutes. The second highest rate, 3 inches per hour, for 10 minutes. The third highest rate, 2.4 inches per hour, for 5 minutes. All of the above rates were between

9.33 A. M. and 9.51 A. M., and during the elapsed time of 18 minutes, 0.9 of an inch of rain fell, representing a rate of 3 inches per hour. An examination of these figures shows us that 49 per cent. of the total fall occurred during 11 per cent. of the total time of fall.

Storms of this character are liable to cause floods, especially at the lower levels of small drainage districts with steep slopes.

The Storm of September 16, 1903.

With the wind at an estimated velocity of 60 miles per hour, accompanied by torrential rain, this storm presented all the aspects of a West India hurricane in its home latitudes. Houses were unroofed, trees were uprooted, and the beating force of the wind-driven rain absolutely cut the surfacing from the macadam roads throughout the Borough, while storm sewers and culverts were gorged, and all things considered, this was the storm of greatest violence of 1903. The storm centre passed off the coast about 100 miles below New York, and probably dissipated itself in that graveyard of hurricanes, the mid-North Atlantic.

The rain began at 7.30 A. M. and continued, at varying rates, until 1 P. M.

Total time of fall, 5 hours and 30 minutes.

Total fall of rain, 3.24 inches.

Between 12 M. and 1 P. M., 1.79 inches of rain fell. The highest rate of fall was 4.31 inches per hour, for 14 minutes. The second highest rate, 2.64 inches, for 5 minutes. The third highest rate was 2.17 inches, for 12 minutes, giving 55 per cent. of total fall in 18 per cent. of total time of fall. The gauge at Central Park Observatory recorded for this storm, 1.63 inches. It was a dangerous storm in every sense of the word.

The Storm of October 8 and 9, 1903.

This storm differed in every respect from the two previously described.

While the storm of June 29th was the usual Summer storm of unusually high, though varying rates of rainfall, and probably more or less local in extent, and the storm of September 16th, with its high and varying rates of rainfall, swept up and off the coast in obedience to the laws that govern storms of cyclonic origin and character, never touching the eastern end of Long Island, the storm of October 8th and 9th, presented remarkable features, not found in either of the above, in regard to duration of rainfall, constancy of rate, and extent or area of influence. There was nothing local in the character of this storm. It extended over hundreds of square miles of territory throughout the middle seaboard states, and the rate of rainfall was remarkably constant, as shown by these copies of the records, as well as by the fact that it rained for 30 hours without ceasing.

The rain began at 9 A. M., October 8th, and ended at 3 P. M., October 9th.

Total time of fall, 30 hours.

Total fall of rain, 9.83 inches.

The highest rate during the storm was 2.0 inches per hour, for 9 minutes.

The highest rate for any one hour during the storm was 0.8 of an inch.

Storms of this character are liable to cause floods at the lower levels of large, as well as small drainage districts.

Some idea of the magnitude of this storm may be realized by considering the fact that the average annual rainfall in this rain belt, for the past 34 years, was 43.15 inches, with the fact that nearly 23 per cent. of that annual average was precipitated in the 30 hours of this storm. Finally, some idea of the dynamics of this storm may be obtained when we consider the fact that a rainfall of 9.83 inches means the depositing of nearly 1,000 gross tons of water on each acre of surface on which that amount of rain falls.

The writer is indebted to our fellow member, Mr. J. T. Fetherston for the analyses of the rain-gauge records and the copies of the same which are herewith presented.

Dr. Arthur Hollick presented a contour chart of the basin of Silver Lake together with copies of analyses of the water, and read the following paper:

**SOME RECENTLY DISCOVERED FACTS
IN REGARD TO SILVER LAKE.**

At our meeting of Oct. 10th, 1903, I gave an account of the depth and form of the Silver Lake basin, determined from measurements made in connection with condemnation proceedings for Silver Lake Park, and since then, by reason of the same proceedings, we have come into possession of some further interesting facts

Borings were made, as indicated on the chart, at a number of stations around the edge and in the bottom of the lake, in order to ascertain the character of the surrounding and underlying strata. The deepest of these borings was in the lake bed, about 8 feet from the shore, on the east side, near the pavilion, where the following section was indicated:

Station 1-b, East Side of Lake.

Ice and water	8.00 ft.
Mud, largely organic	5.67 "
Fine sand, apparently silt	6.33 "
Gravel, containing a small amount of clay	6.30 "
Sand and clay	3.83 "
Sand, containing a small amount of clay	18.25 "
	48.58 "

Hard rock was struck at this depth, probably a boulder, as all the material below the mud and silt was found to be the typical red boulder till, sand and gravel of which the surrounding shores are composed, derived for the most part from Triassic sandstone and shale.

At the south end of the lake, in the far side of the morainal barrier near the outlet, (Station 4), at a point where the surface of the ground is about five

feet below the level of the lake surface, a boring was made to a depth of 8.25 feet, which revealed nothing but drift deposits, similar to station 1-b.

The most interesting results were obtained from the borings at the north end (toward Logan's spring), and on the west side (toward Hart Park), at both of which stations the underlying soapstone rock was reached. Each of these borings was started close to the shore line, practically at the level of the lake.

Station 2, North End of Lake.

Bog mud	2.25 ft.
Sand and clay	5.41 "
Sand, clay and pebbles	3.59 "
"Hardpan," sand, clay and pebbles	10.17 "
Soft bluish soapstone	12.92 "
	34.34 "

Compact soapstone at bottom.

At this place the soapstone was there-fore struck at a depth of about twenty-two feet.

Station 3 a, West Side of Lake.

Grass, bog mud and silt	4.53 ft.
Sand, clay and pebbles	10.33 "
Greenish clay (disintegrated soapstone?)	1.67 "
Soft bluish soapstone	17.75 "
	34.33 "

Compact soapstone at bottom.

If the greenish clay represents, as it apparently does, the disintegrated upper part of the soapstone rock, this latter is only about fifteen feet below the surface at this point.

These facts prove conclusively, what we had always inferred, that the basin of the lake is due, primarily, to a trough in the underlying soapstone with its longer axis in a northeast and southwest direction, which has been dammed by a barrier of drift material at the southern end. They also indicate, what had not occurred to us before, that the barrier at the northern end is not wholly composed of drift, but has as its basis an underlying spur or ridge of soapstone. It is unfortunate that the borings did not determine the level

of the soapstone surface in the deeper parts of the basin.

NOTE.—The borings at stations 1, 1-a, and 3 were abandoned at depths of 7 ft. 6.75 ft. and 14 ft., respectively, on account of striking bowlders. The records in regard to these are therefore not included.

Lake water collected July 17, 1903.

	Pts. per 100,000	Grains per gal.
Appearance, turbid (suspended organic matter)		
Color, yellowish.		
Odor at 100 Fahr., marshy		
Chlorine	1.2425	0.7206
Phosphates, none		
Nitrogen in nitrites, none		
Nitrogen in nitrates, none.		
Free ammonia	0.0010	0.0005
Alb. ammonia	0.044	0.0255
Hardness before boiling, 2		
Hardness after boiling,		
Organic and volatile matter, (loss on ignition)	4.5	2.61
Mineral matter, no: volatile		
atile	3.2	1.856
Total solids, by evaporation	7.7	4.465

Lake water collected Nov. 20, 1903, after two weeks of fine weather.

	Grains per gal.
Chlorine	0.80
Free ammonia	.0005
Alb. ammonia	.006
Hardness, 1½	
Organic and volatile, (loss on ignition)	2.59
Inorganic residue	2.05
Total solid residue	4.65
Calcium carbonate	1.45
Calcium sulphate, trace	
Iron, trace	
Magnesia, none	

Lake water collected Dec. 7, 1903.

	Pts. per 100,000	Grains per gal.
Calcium carbonate	.30	.17
Magnesium carbonate	.00	.35
Calcium sulphate	1.80	1.05
Sodium and potassium chlorides	.80	.46
Magnesium chloride	.20	.17
Calcium chloride	.12	.07
Iron oxide, (Fe 2 O ₃)	.14	.08
Alumina	.19	.11
Silica	.41	.24
Total mineral matter	4.65	2.71
Total organic matter	2.20	1.28
Total solids	6.85	3.99

Albumenoid ammonia	.0316
Free ammonia	.0252
Nitrites	.0003
Nitrates	none
Chlorine	.8000
Iron	.1360
Carbonic acid gas	.6500
Hardness	2.6000
Alkalinity	.8000
Fixed solids	4.6500
Suspended solids	.3000
Loss on ignition	2.2000

The following genera of microscopic organisms were detected :

Dinobryon
 Codonella
 Trachelomonas
 Synchaeta
 Melosira
 Protococcus

Water taken from boring 3-a, Dec. 16, 1903.

	Pts. per 100.000
Carbonates of lime and magnesia	5.90
Sulphates of lime	4.21
Chloride of sodium	1.22
Oxide of iron (Fe_2O_3)	.17
Silica and alumina	.80
Total mineral matter	12.30
Organic and volatile	.80
Total solids	13.10
Albumenoid ammonia	.0622
Free ammonia	.0212
Nitrites	.0003
Nitrates	.0050
Chlorine	.7400
Iron	.1200
Hardness	10.6000
Alkalinity	5.9000

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PROCEEDINGS OF THE NATURAL SCIENCE ASSOCIATION OF STATEN ISLAND.

VOL. IX, No. 5.

MARCH 19th, 1904.

The regular meeting of the Association was held at the Staten Island Academy.

In the absence of the president Mr. Fred. F. Hunt was elected chairman *pro tem*.

Mr. E. C. Delavan read a paper on THE DISPUTE BETWEEN THE PROPRIETORS OF EAST NEW JERSEY AND THE DUKE OF YORK, CONCERNING THE TITLE TO STATEN ISLAND, which will be published as a special number of the Proceedings.

Mr. Wm. T. Davis exhibited specimens of Staten Island moths and read the following paper:

PRELIMINARY LIST OF STATEN ISLAND
MOTHS BELONGING TO THE FAMILIES
SATURNIIDÆ, CERATOCAMPIDÆ,
SYNTOMIDÆ, ARCTIIDÆ AND
AGARISTIDÆ.

A list of the hawk moths of Staten Island was published in these Proceedings for January 10th, 1903. This is a continuation of that list and includes the families between the Sphingidæ and Noctuidæ. The species are figured in the recently published "Moth-Book" by W. J. Holland, and are also described by Mr. Beutenmuller in his "Descriptive Catalogue of the Bombycine Moths found within Fifty Miles of New York City."

Chlaenogramma jasminearum Bdv. may now be recorded as an addition to the list of hawk moths, having been captured on the Island in July.

Protoparce rustica Fabr. has been mentioned as an addition in these Proceedings for May 9th, 1903.

FAMILY SATURNIIDÆ.

Philosamia cynthia Drury. June, July, Aug. This imported insect was first noticed on Staten Island about 1882.

Samia cecropia L. June, July, Aug.

Callosamia promethæa Drury. June, July, Aug. Several years ago fifteen cocoons of this species were collected from the same tulip tree and kept separate from all others, for the purpose of noting at what times the moths would emerge therefrom. The dates were as follows:

June 9	one	male
" 16	"	"
" 17	"	"
" 20	"	female
" 23	"	"
" 30	one male and a female	
July 3	one female	
" 7	two females	
" 8	males	
" 11	three females.	

Callosamia angulifera Walk. June, July, Aug. The cocoons are to be found on the ground under the trees on which the caterpillars have fed Tulip,

(*Liriodendron*). seems to be the favorite food plant.

Tropæa luna L. April to September inclusive. Double brooded and occasionally triple brooded.. I have raised two generations of caterpillars from eggs laid by a moth collected at Kreischerville on the 11th of July. In these Proceedings for April 13th 1895 an account is given of "Scarlet-margined Luna Moths." This form has only been found on the Island in the Spring.

Telea polyphemus Cramer. June, July, Aug.

Automeris io Fab. June. July, Aug.

The allied moth, *Hemileuca maia* Drury, has been found in various parts of New Jersey not far removed from the Island, and no doubt is to be found here also.

FAMILY CERATOCAMPIDÆ.

Anisota stigma Fab.

" *senatoria* S. and A.

" *virginiensis* Drury. June.

" *rubicunda* Fab. May, June.

I am indebted to Mr. Louis H. Joutel for identifying several caterpillars of this genus.

Citheronia regalis Fabr June, July.

Basilona imperialis Drury. June, July, Aug.

FAMILY SYNTOMIDÆ.

Scepsis fulvicollis Hubner. June, July, Aug., Sept., Oct 21st, 1900.

Lycomorpha pholus Drury. It has been found in mid-summer, but seems to be a rare species on the Island.

FAMILY ARCTIIDÆ.

Eubaphe immaculata Reakirt. May, June.

Eubaphe aurantiaca Hubner.

" a. *rubicundaria* Hubner. Aug.

" b. *ferruginosa* Walker. June

" c. *brevicornis* Walker. June

Utetheisa bella L. June 27th, August, Sept., Oct, Nov. 1st, 1903.

Haploa clymene Brown. Quite abundant in July and August, 1890.

Ecpantheria deflorata Fab. (*E. scribonia*) The larvæ have been found on the Island.

Estigmene aceræa Drury. May, June, July, Aug.

Estigmene congrua Walker. (*E. anti-gone*) May, June, Aug.

Hypantria cunea Drury.

" *textor* Harris.

Isia isabella S. and A. May, June, July, Aug., Sept.

Phragmatobia fuliginosa L. Collected by Mr. Oscar Fulda in August.

Diacrisia virginica Fab. June, July, Aug.

Diacrisia latipennis Stretch. May, June.

Apantesis arge Drury. April 23d 1898. July, Aug.

Apantesis nais Drury. June, July, August.

Apantesis vittata Fab. June, July, Aug. Sept.

Apantesis vittata var. *phalerata*.

Ammalo tenera Hub. (*A. collaris*) June, July.

Ammalo egle Clemens. June.

Euchaetias egle Drury. June.

Halisidota tessellaris S. and A. July

" *caryæ* Harris. May, June.

A note in these Proceedings for February 9th, 1884, records the fact that a number of these moths hatched under the influence of artificial heat in mid-winter, emerged from the cocoons about 7 P. M. In May and June this would have been the proper hour, for they could have dried their wings by the last rays of the setting sun. In Dec. and January it was much too late and the moths were found to move their positions so as to receive the full rays from the lamp.

FAMILY AGARISTIDÆ.

Alypia octomaculata Fab. June, July.

RECENT LITERATURE RELATING TO
STATEN ISLAND.

Dr. Arthur Hollick read the following review:

The Clays of the United States East of the Mississippi River. Heinrich Ries.

Professional Paper No. 11, U. S. Geol. Survey, 4to, pp. 298, pls. 9, figs. 11 in text. Washington, D. C., 1903.

Under the caption "New York" (pp. 170-179) there are several references to the Kreischerville clays, including the following analysis of white fire brick clay, on p. 174:

Si O ₂	47.40
Al ₂ O ₃	39.01
Fe ₂ O ₃.....	.15
Ca O.....	trace
Mg O.....	trace
K ₂ O.....	trace
Na ₂ O.....	trace
H ₂ O.....	14.10

On the same page is also given the following results of a physical test of a similar clay from the same locality:

Amount of water required to work up	38 per cent.
Plasticity	fair
Tensile strength...11-14 lbs. per sq. in.	
Air shrinkage.....	10 per cent.
Fire shrinkage.....	8.7 per cent.
Viscosity.....	35 +
Color when burned.....	white.

The number representing the measure of viscosity means a fusing point of about 3,326° Far., or 1,830° Cent., showing a very refractory clay.

Mr. A. B. Skinner referred to an illustrated article entitled "*When Red Men Battled on Staten Island*," by Geo. H. Pepper, in the New York Herald of March 6th 1904, in which the Indian burying ground at Tottenville and the work of Mr. Pepper in exploring it are described. The illustrations include figures of some of the most interesting of the relics which were unearthed there, a view of the sandy field adjoining the Cole property, where the excavations were made and a picture of a part of one of the latter, showing the remains of three skeletons in place. The work was done under the auspices of the American Museum of Natural History, where the relics are now preserved. It is a matter for regret that this material is not a part of our own collection from the same locality.

SPECIMENS EXHIBITED.

Mr. Davis exhibited photographs of Staten Island trees, taken by Mr. Romeyn B. Hough.

Mr. Skinner exhibited a series of leaf shaped arrow points from a number of Staten Island localities and a war arrow point found at Horseshoe spring.

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PROCEEDINGS OF THE NATURAL SCIENCE ASSOCIATION OF STATEN ISLAND.

VOL. IX, No 6.

APRIL 9th, 1904.

The regular meeting of the Association was held at the residence of Mr. Wm. A. Shortt, Tompkinsville, with the president in the chair.

Mr. Shortt read a paper, illustrated by blackboard sketches and diagrams, on **SOME VAGARIES OF VOTERS: A STUDY OF DEFACED AND DEFECTIVE BALLOTS**, which will be issued as a special number of the Proceedings.

Mr. Wm. T. Davis read the following memoranda:

I.

WOLFFIA IN THE CLOVE VALLEY.

In these Proceedings for December 9th, 1893, Mr. Thomas Craig reported the discovery on the Island of *Wolffia*, the smallest native flowering plant. The plant remained abundant in the Old Town pond for several years and then disappeared. In the summer of 1903 I found *Wolffia* very plentiful in Clove Lake, associated with *Lemna*. The dyke of this pond was one of the three that broke in the Clove Valley during the great rain of October 8th and 9th, 1903. The pond was completely drained and the brook, that once flowed through the valley, was reestablished. The dam has been rebuilt and it is to be hoped that the tiny *Wolffia* was not all carried away with the water, and that it will regain its former abundance.

II.

TWO OLD BOOKS BY STATEN ISLANDERS.

"The American Grape Growers Guide," written by the late Mr. Wm. Chorlton, one of the early members of this Association, was published in 1856. It is of interest to find that the book is still well thought of, and in their descriptive list of "Rural Books," 1902-3, Orange Judd Co. refer to it as "a practical treatise on the cultivation of the grape vine in the hot-house, cold graperery, etc."

Another old book by a Staten Islander, but which would not be considered very useful to-day, is "The School Geography, by John J. Clute, New York. Published by Samuel Wood & Sons, No. 261 Pearl Street, 1833." In 1877 Mr. Clute issued the "Annals of Staten Island," which has been included in the two histories of our Island published since that date.

RECENT LITERATURE RELATING TO STATEN ISLAND.

The secretary called attention to a copy of the *Proceedings of the First General Convention to Consider the Questions Involved in Mosquito Extermination*, transmitted by Mr. Walter C. Kerr.

This is an octavo volume of 84 pages, excellently illustrated and containing valuable up-to-date information in re-

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gard to the life history of mosquitos, their relation to malaria, suggestions for extermination, etc. On pp 16-18 is an article by Mr. Kerr, entitled: "What a Rural Community Can Do," in which is described what was done to mitigate the mosquito nuisance in the vicinity of the Richmond County Country Club in 1898 and what is contemplated to be done in the future.

The convention was held in New York, December 16th, 1903, and the volume bears the imprint of the Brooklyn Eagle Book Printing Dept., 1904.

SPECIMENS EXHIBITED.

Mrs. L. E. Low exhibited a collection of dried ferns from China and Nassau Island, W. I.

Mr. Wm. T Davis exhibited specimens of moths showing deformities.

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PROCEEDINGS OF THE NATURAL SCIENCE ASSOCIATION OF STATEN ISLAND.

VOL. IX, No. 7.

MAY 14th, 1904.

The regular meeting of the Association was held at the residence of Mr. A. C. Knothe, Tompkinsville, with the president in the chair.

Mr. Montague Lessler, Tompkinsville and Mr. Geo. W. Tuttle, New Brighton, were elected to active membership.

Mr. A. B. Skinner exhibited a collection of indian relics, consisting of brass arrow points, fragments of a pewter kettle, lead bullets, gun flint and pieces of clay pipes, and read the following paper:

TRADE ARTICLES USED BY THE STATEN ISLAND INDIANS.

Before coming in contact with the whites the Staten Island indians knew very little of metal of any sort. A few stray pieces of native copper, passing from hand to hand down the coast, or brought here and lost by some invader, may have appeared from time to time, but none have survived to the present day.

Some years ago Mr. George Pepper, when excavating in Burial Ridge at Tottenville, discovered the skeleton of an infant, some of the bones of which were greatly discolored by salts of copper but otherwise no trace of prehistoric metal has been reported.

Upon the advent of the white man, all was changed. Deer skin was laid

aside for "duffels;" the flint blade was exchanged for the steel knife; the stone ax for the tomahawk. The bow was still largely used however, for the sagacious Dutch settlers of New Amsterdam, while they were willing enough to trade the rifle to the Iroquois and other distant indians, did not care to make the savages who lived about their doors masters of the "mysterious iron." The earthen pot was soon seen by the observant savages to be less desirable than the pewter or brass vessels of the Dutch and thus was early discarded. And unfortunately the cheap clay pipe of European manufacture soon took the place of the handsome clay and stone pipes of the aborigines.

Very many presents of European articles of all sorts were made to the indians, and many were received in exchange for parcels of land. Governor Lovelace gave the indians of Staten Island, in 1675, the following articles in exchange for their claims here:

- I. 400 fathoms of wampum
- II 30 match boots
- III. 8 coats of Durens, made up
- IV. 30 shirts
- V. 30 kettles
- VI. 20 gunnes
- VII. firkin of powder
- VIII. 60 barres of lead
- IX. 30 axes

X. 30 hoes

XI. 50 knives.

In spite of this profuse distribution of articles designed for the indian trade, very few objects remain today. In several years collecting the writer has found only two metallic arrow points, several bullets and gun flints, one fragment of a pewter kettle and several broken trade pipes. Only one or two other articles have ever been reported.

Strangest of all no iron-axes have ever been found to my knowledge, although they must have been abundant here in colonial days.

The trade pipe is fairly abundant and may easily be distinguished by the trade marks R. T., or R. Tippet, stamped on the bowl. Metallic arrow points are not frequent.

Mr. Skinner also read the following note on

INDIAN SKELETONS AT MARINERS'
HARBOR.

On the 20th of April last, while searching for indian implements on the grounds of the Milliken Bros. foundry, near Dehart's Brook, Mariners' Harbor, I chanced upon a place where the railroad cut had been recently widened. Noticing that oyster shells, fragments of pottery, flint chips, black dirt, etc., were abundant I disturbed the sand with my feet, and to my great surprise dislodged a fragment of a human femur. I immediately began to excavate with my trenching tool, and soon disclosed a "bone burial" consisting of the bones of five indians, (3 adults and 2 infants.) All were in a terrible condition, being extremely fragmentary. I at first thought that the bones had all been broken by the shovels of the Italian workmen, but further examination convinced me that the skulls at least had been crushed in before burial. No im-

plements save a rude argillite knife and one small pottery fragment were found.

Mr. Wm. T. Davis exhibited herbarium specimens and read the following

BOTANICAL NOTES.

Additions to the Flora.

Rosa canina L. Found originally by Dr. A. A. Tyler in 1897. The bush from which the specimens were gathered was destroyed in widening the Fresh Kill Road near Green Ridge.

Rhamnus cathartica L. This shrub has been cultivated for hedges and has sparingly escaped on our island. It occurs on the bank or terrace near the Narrows, along Rockland Road, on Todt Hill, etc.

Tragopogon pratensis L. A single plant was found on Hamilton Avenue, New Brighton.

Crepis tectorum L. Several plants were found at Arrochar and one at New Brighton.

Nabalus trifoliolatus Cass. Occurs frequently in the wooded portions of the Island.

New Localities.

Polypodium vulgare L. This fern, now nearly exterminated on our island, was found growing on the base of a tree in the woods near Poverty Lane, back of Richmond.

Pogonia verticillata (Willd.) Grows in two localities near Mariners' Harbor. It has been reported from Giffords and Huguenot.

Salix tristis Ait. Rossville. A single clump.

Ostrya Virginiana (Mill.) This tree has been found in Blood-root Valley and along a brook near Willow Brook hamlet. (See also Proceedings for Nov. and Dec., 1896.)

Betula nigra L. The river birch has been found sparingly over the wooded portions of the island in wet and damp

situations. There is a considerable clump of these birches growing at Watchogue and a few trees were found by me and Mr. Leng near Rossville last Fall.

Ammodenia peploides (L.) The sea-beach sandwort was reported in the Flora as not common. It seems to have disappeared for a few years from the South Beach. In 1897 a small clump was found. None could be discovered again until 1900, when another clump was found on the shore at Oakwood. No plants have since been observed.

Ranunculus delphinifolius Torr. The yellow water-crowfoot occurs near Luyster Pond, Valley Forge, Westfield.

Crotalaria sagittalis L. A single plant on Richmond Hill. It has been reported from near Silver Lake.

Vicia Cracca L. Tottenville.

Geranium Carolinianum L. This geranium grows at Tottenville and vicinity. A new locality for it is the head of Simonson Avenue, Mariners' Harbor, where there are a few plants.

Linum usitatissimum L. Near Ward's Point, Tottenville. Gardens, New Brighton.

Tilia Americana L. American linden. Upper part of Moravian Brook; two trees. The trees mentioned in these Proceedings for Feb. and Sept., 1891, all grew on the westerly side of the range of hills.

Myriophyllum humile (Raf.) Reported in the Flora from "ponds near New Dorp (Allen in T. C. B.)" A definite locality in Butler's Pond.

Ipomoea hederacea Jacq. The ivy-leaved morning-glory was found in considerable abundance in a cultivated field near the Billopp House, Tottenville, in September, 1902.

Solanum rostratum Dunal. Growing in some abundance in a back yard in Port Richmond. A single plant was

reported from near Four Corners in 1875 by W. H. Rudkin.

Sericocarpus linifolius (L.) Dr. Dowell and I found several clumps of the narrow-leaved white-topped aster growing in a barren field at Richmond Valley. A single plant was reported from Watchogue in these Proceedings for October 14th, 1893

Inula Helenium L. Elecampane has been found near the Morgan Road, not far from the Fresh Kill bridge, on Karle's Neck. It was originally reported as abundant near Garretsons and New Dorp, but seems to be quite uncommon there now.

Centaurea nigra L. From the Country Club grounds on Todt Hill in 1897. In the same year it was found quite abundant in a field near the Billopp House, Tottenville.

Mr. Davis also exhibited specimens of "flat bugs" and read the following

NOTE ON ARADUS.

The "flat bugs" (Aradidae) are Hemipterous insects fitted to live in the narrowest of crevices. They are usually found in and under the bark and are sometimes mistaken for bed-bugs. Six species of these insects have so far been collected on the island. On April 10th of this year, a species that has been determined for me by Mr. Bueno as *Aradus similis* Say, was found in some numbers at Mariners' Harbor. Some individuals were collected on the fungus *Polyporus betulinus* which occurs so commonly on the white birch. As there is still much to be learned concerning the habits, etc., of these flattest of all bugs, it may be well to record the fact that *similis* was found paired on the date given above.

SPECIMENS EXHIBITED.

Dr. Arthur Hollick presented a fragment of a weathered limestone Drift, boulder, found near Egebrtville, containing fucoid markings; a piece of talcose schist from the same locality, and a stone adze, locality not known, donated by Mrs. A. K. Lauderdale.

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PROCEEDINGS OF THE NATURAL SCIENCE ASSOCIATION OF STATEN ISLAND.

VOL. IX, No. 8.

OCTOBER 15th, 1904

The regular meeting of the Association was held at the residence of Dr. Arthur Hollick, with the president in the chair.

The following were elected to active membership:

Oliver D. Clark, James P. Chapin, Edwin Stumpp, New Brighton, and Orrin L. Brodie, Port Richmond.

Dr. Arthur Hollick exhibited specimens and read the following

GEOLOGICAL NOTES.

A submerged peat bed. During the past Summer Mr. C. S. Egbert, of Port Richmond sent me specimens of peat and silt, with the following memorandum and a map:

"The specimen of peat was dredged from a bed of the material encountered during the work of the United States Government in straightening and deepening the channel of the Kills, at a point just west of Long Dock, Mariner's Harbor. It was at a depth of about 12 feet below mean low water and was found to be about 4 feet in thickness, with about 8 feet of silt overlying it. No hard rock was encountered in this vicinity."

This specimen of peat is similar to that which is in process of formation in connection with our salt marshes at the present time, at tide level, and its position at such a depth, with eight

feet of sediment covering it, gives us an excellent example of the extent of the subsidence which has taken place there in recent geologic time. The silt is very fine, grayish in color, and in drying has hardened into a firm, compact mass.

A large fossil coral. A recent search in the Yellow Gravel included in the moraine at Prince's Bay bluff brought to light several pebbles containing the characteristic silicified fossils, of which one consists of the largest piece of coral thus far found on the Island. It is a notable addition to our already excellent collection of these interesting fossils.

Dr. Hollick also exhibited specimens and read the following

BOTANICAL NOTES.

Thymus Serpyllum L. Wild Thyme. A small patch of this plant, which seems to be spreading, grows on the Fox Hills golf links. The situation is such as to favor its preservation and there is reason to hope that it may become the nucleus for more extended local distribution. The only previous record of the occurrence of the species on the Island was based on a small patch found in 1879 on the side of Richmond Turnpike, near Silver Lake, although Mr. Samuel Henshaw also re-

ported it as growing in New Brighton, on Hamilton Avenue. It has long since disappeared from these localities and its reappearance in such an apparently isolated location is both interesting and encouraging.

Antennaria neglecta Greene, and *A. plantaginifolia* (L.) Richards. These two species of Everlasting Flower, which we formerly included in one species, under the latter name, are about equally common on the Island, as may be readily ascertained by examining a number of patches of the plants in different places. I was interested to note that in my herbarium are specimens of both species, collected many years ago and mounted on separate sheets on account of the manifest difference between them, but without recognition that they were specifically distinct. Another species is thus added to our local flora.

Mr Wm. T. Davis exhibited a living specimen and read the following

NOTE ON *HYLA ANDERSONI* BAIRD.

This specimen of the rare tree toad, *Hyla Andersoni* Baird, was collected on Sept. 5th at Lakehurst, N. J. In "The Batrachia of North America," published in 1889, where a colored plate of the species may be found, Prof. Cope writes: "This beautiful species is of much rarity, but two specimens having thus far come under the eyes of naturalists. The largest known is the type from Anderson, S. C., which is represented in Plate 84; the second specimen was found by Prof. Leidy, of Philadelphia, at Jackson, N. J., and was the subject of the description of coloration in life, given above."

Since the above was written several additional specimens have been recorded; namely, from May's Landing and Pleasant Mills, both in Atlantic Co.,

N. J. Jackson, where Prof. Leidy found his specimen in 1863, is in Camden Co. Lakehurst is the most northern locality from which the species has been reported.

RECENT LITERATURE RELATING TO
STATEN ISLAND.

I. *Geology of the City of New York (Greater New York) with Geologic Map, 2nd Edition.* L. P. Gratacap. 8 vo., cloth, pp, 119, pls. 2, map and 35 figs. in text. New York, 1904. The Irving Press, 225 4th Ave.

This brochure is designed, according to the title page, "for use in schools, institutes and classes," but it may be read with interest and profit by anyone who may wish to learn, in a general way, what is known in regard to the geology, topography and mineralogy of the region. It is written in popular language and in addition to what is indicated in the title there are included many quaint bits of local history and a fairly complete bibliography. Staten Island receives special treatment on pp. 86-94, and our Island necessarily comes in for a full measure of attention in the discussion of the evidences of glaciation. This portion of the work is a reprint of the separate paper published by the author in 1893 and reviewed in our Proceedings of Oct. 8th of that year. "Sugar-loaf rock" in the Irving property, Grymes' Hill, and the bluff at Prince's Bay, are subjects of illustration.

For the instructor, and the busy person who may not have the time to hunt up and become familiar with the many scattered sources of information on the subject, this will prove to be a welcome volume. It contains an excellent resume of most of the important facts which should be known, as well as

clearly written and impartial discussions of theories. It is a matter for regret that the illustrations are not up to the standard of the text.

II. *An Undescribed Species of Alnus*. N. L. Britton. Torrey, Vol. iv (Aug. 1904) p. 124. A description of a new species of Alder, based upon a specimen collected at Grant City, Staten Island, which was at first thought to represent *Alnus incana* (L.) Willd., and was so listed in Appendix No. 7 to the Flora of Richmond County, in 1895. It may also be found mentioned in our Proceedings for Jan. 12th, 1895, under the above name. Dr. Britton now describes it as a new species, to which he gives the name *Alnus Noveboracensis*. This will therefore have to replace *A.*

incana in our local list. The type specimen is in the herbarium of the New York Botanical Garden.

SPECIMENS EXHIBITED.

Mr. Wm. T. Davis exhibited shoots of locust trees, collected near Great Kills, barked by rabbits. This was considered as an indication of how the animals were hard pressed for food during the past severe winter.

Dr. Arthur Hollick exhibited specimens of Drift boulders containing fossils, collected at Giffords and Tottenville; Cretaceous leaf impressions in ferruginous shale, from Tottenville; sandstone impregnated with copper, from the Princes Bay bluff and two arrow points found on the Fox Hills golf links.

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PROCEEDINGS OF THE NATURAL SCIENCE ASSOCIATION OF STATEN ISLAND.

VOL. IX, No 9.

NOVEMBER 12th, 1904.

The Twenty-fourth Annual Meeting of the Association was held at the Staten Island Academy.

In the absence of the president Mr. Fred. F. Hunt was elected chairman *pro tem*.

Reports of officers for the past year were read and approved as follows:

Secretary:

Number of members on roll at date of last annual meeting.....	106
Since elected.....	15
Resigned.....	6
Dropped from the roll	3
Deceased.....	1

Leaving at date, including 1 life member and 2 honorary members... ..111

Treasurer:

Balance on hand at date of last annual meeting.....	\$320.37
Received from membership dues	234.00
Received from sales of and subscriptions to Proceedings.....	20.50
Interest on deposit in savings bank	16.30

Balance & income \$591.17

Disbursements:

Printing and stationery	\$151.30
Postage and expressage	18.82
Insurance.....	17.50
Library supplies.....	12.75

Subscriptions to periodicals	5.00
Janitor.....	5.00

Total disbursements \$210.37

Balance in hand \$380.80

Curator:

Additions to the museum:

Number of separate donations...	12
Number of specimens included in above.....	38
Classified as:	
Geology.....	28
Botany.....	6
Archaeology.....	4

Additions to the library:

Number of bound volumes, parts of volumes and pamphlets recd.	314
Classified as follows:	

By exchange.....	251
Donated.....	53
By subscription.....	10

Forty-one volumes now in the hands of the binder, will, when returned, make a total of 602 bound volumes in the library.

The executive committee, through the the secretary, submitted a preliminary report of progress in regard to what had been done, and an outline of what was under consideration, in connection with the possible future expansion of the Association and plans for new quarters.

On motion the report was approved and ordered placed on file and the committee was instructed to proceed along the general lines indicated in the report.

The following were elected to active membership:

E. E. Valentini, Tompkinsville.
Stafford C. Edwards, New Brighton.
W. F. Keeney, West New Brighton.

The election of officers for the ensuing year resulted in the re-election of the present incumbents, as follows:

President, Howard R. Bayne.
Secretary, Arthur Hollick.
Treasurer, J. Blake Hillyer.
Curator, C. A. Ingalls.
Trustee, Wm. T. Davis.

On motion, it was *Resolved*: that the regular meetings of the Association during the ensuing year be held on the third Saturday evening of each month except June, July, August and September.

The annual address of the president, Mr. Howard R. Bayne, was read by the secretary, as follows:

ANNUAL ADDRESS OF THE PRESIDENT.

It is recognized as appropriate to lay before the annual meeting of the Association a brief report on the part of its president.

Since the last annual meeting we passed through one of the most inclement winters within the memory of the present generation. Continuous cold weather was accompanied by frequent storms sharp and severe. It was frequently said by our neighbors that we were having an old fashioned winter. A good deal of suffering resulted, and traveling about the Island, especially during the night time, was difficult, sometimes impracticable, and frequently inconvenient. In spite, however, of these impediments, the meetings of the Association were marked by a full at-

tendance, and an intelligent interest in its proceedings.

We have been entertained and instructed by a number of able and valuable papers, and by the presentation of many interesting specimens from the mineral, vegetable and animal kingdoms. We owe a debt of gratitude which we cannot easily pay, to our fellow members who have contributed so much to our pleasure and who have both entertained and instructed us at the expense of time, patience and capacity on their parts.

To Dr. Arthur Hollick, we are indebted for many interesting geological specimens which he has added to our museum, and to several papers on geological subjects which will increase in value as time goes on. Mr. William T. Davis has contributed a number of papers, descriptive of the specimens of vegetable and animal life, which he has exhibited at our meetings, all of which have been characterized by his usual accuracy of statement and careful research. Interesting botanical specimens have been submitted from time to time by Dr. Philip Dowell, and relics of Indian handiwork by Mr. Alanson B. Skinner, who has also contributed several papers on the subject of the Staten Island Indians, which show careful study and research unusual in one of his years. We are also indebted to Mr. William Allaire Shortt for a paper entitled "The Vagaries of Voting: A Study of Defaced and Defective Ballots." This paper was illustrated by black-board sketches and diagrams, and was especially interesting to many of us who take interest in public affairs. This paper we hope to publish in full, with illustrations, in the near future, as a special number of the Proceedings. Mr. Edward C. Delavan has added to our historical information by his paper entitled "The Dispute Between the Proprietors of East New Jersey and the Duke of York. Concerning the Title to

Staten Island" which we also hope to publish under the same conditions as the paper previously mentioned. Mr. Delavan's researches into the Colonial history of Staten Island have been painstaking and accurate in the extreme, and any paper from him may be relied upon by the historian of the future. Other members have contributed to our entertainment during the year, by the exhibition of specimens and interesting discussions, among whom I may specially mention Messrs. L. W. Freeman and John T. Fetherston.

This report would be incomplete without mentioning the movement in the direction of securing permanent and adequate quarters for the museum of the Association, where we propose that our collection may be displayed for the instruction and entertainment of the public, and where accommodations may be had for public, special and such other meetings as we may wish to hold.

This subject has received consideration for a long time, but necessarily progress on practical lines has been delayed on account of the numerous other more pressing calls upon the people in their municipal as well as in their individual capacity. We have, since the consolidation of our community with the greater City, been passing through a period of development and construction, along lines requiring the expenditure of much money and effort to secure those conveniences of transportation and other public utilities which are necessary in the pursuit of our daily avocations. Concessions from the municipal authorities in excess of those necessary demands have seemed impracticable, so long as we are still without those conveniences and necessities which are essential to our comfort and safety in the daily walks of life. To be too insistent and pressing would perhaps defeat the very object we have in view, but the time is ap-

proaching when we may safely undertake to bring the requirements of our Association and the possibilities of its resources in the direction of public instruction and entertainment, to the attention not only of the authorities, but also to our fellow citizens of Staten Island. This matter, however, is in the hands of a committee of the Association, from whom a report may be expected to-night.

The social features of our meetings have been most agreeable and satisfactory, and I am sure that I record the feeling of the Association as a whole, when I express the appreciation of the members to those of our number who have entertained us at their homes, during the past year.

In review of the year, I think we may congratulate ourselves that it has been a most profitable and pleasant one to us all, and that our Association has held its own in the esteem of the community and in the respect and good will of the outside world. The reports of the respective officers of the Association will inform you more particularly in regard to the details of its affairs.

In conclusion, I wish to express to the Association my appreciation of the courtesy and the kindness with which I have been uniformly treated by the members, as its presiding officer.

Dr. Arthur Hollick exhibited specimens of amber and fossil leaves, from the Kreischerville clays and read the following paper:

**A RECENT DISCOVERY OF AMBER AND
OTHER FOSSIL PLANT REMAINS AT
KREISCHERVILLE.**

In the published Proceedings of our meeting of December 12th, 1885, may be found a short paragraph by the writer to the effect that fossil plant remains were found on November 15th of that year in the Cretaceous clays of Kreischerville. This discovery was described more at length in the Proceedings of

February 13th, 1886, where the following paragraph may be found included: "There are also little masses of a yellow substance here and there, which I take to be a fossil gum or amber." These were only about the size of pin heads, but the few that were found were carefully preserved.

Again, at our meeting of March 12th, 1882, Mr. Wm. T. Davis exhibited specimens of amber and lignite from Kreischerville and a further discovery of fossil plants at the original locality was noted by me.

Since our last meeting another deposit of fossil leaves, lignite and amber has been uncovered, in the Androvetta clay pit and a large amount of material has been brought to light. The leaves will be subjected to critical study and description later on. It is the amber to which I wish to call special attention tonight.

It was found associated with fragments of lignite, charred wood, leaves and vegetable debris of all kinds and masses of pyrite, in a somewhat lenticular shaped bed of limited extent, which, where exposed, showed a maximum thickness of about 3 feet and a lateral extent of about 18 feet. Only a small amount of the matrix was excavated and subjected to examination, but a relatively large amount of amber was obtained. Some of this is in the form of small drops or "tears", but the bulk of it is in irregularly shaped fragments or masses, varying in size from a large pin's head to a hickory nut. In color it varies from opaque grayish white to transparent yellow or red. The best specimen is clear yellow and is the largest in size.

Further search would without doubt yield further and probably more valuable and interesting results and as much time as possible will be devoted to it before the weather becomes too cold for field work.

Mr. Wm. T. Davis exhibited specimens and read the following paper on

THE RIPENING OF THE FRUIT OF CHOKEBERRIES.

The Purple-fruited Chokeberry, *Aronia atropurpurea* Britton, was originally described by Dr. N. L. Britton, on p. 517 of his "Manual of the Flora of the

Northern States and Canada," in 1903, from specimens found at Arlington, Staten Island. The type specimen is in the herbarium of the New York Botanical Garden.

In September and later in the Fall, bushes of *Aronia atropurpurea* resemble considerably those of *Aronia arbutifolia* (L.) Medic., except in the color of the fruit, but earlier in the season the differences between the two species is more marked. Both species grow together at Arlington and Mariners' Harbor, and if the bushes are examined during early August it may be found that while the berries of *atropurpurea* have already turned purple, those of *arbutifolia* are far from ripe. The berries of the last named species do not attain their bright red color until the latter part of the month. Dr. Britton informs me that this difference in the time of the ripening of the fruit of these chokeberries has lately been observed in specimens under cultivation in the N. Y. Botanical Garden.

Associated with the above mentioned two species is a third form, with black fruit, which shrivel earlier in the Fall than either the berries of *atropurpurea* or *arbutifolia*. It is presumably *Aronia nigra* (Willd.) Britton, from the glabrous pedicels and nearly glabrous leaves, but its fruit, though shriveled, persists for a long time and cannot be said to be "early deciduous."

During the first part of November, all of the three forms may be identified at Arlington by aid of their mature fruit and few remaining leaves. *Aronia atropurpurea* has not been heretofore listed as an addition to our local flora.

SPECIMENS EXHIBITED.

Mr. Davis exhibited specimens of *Antennaria neodioica* Greene, as an addition to our local flora, and specimens *A. neglecta* Greene and *A. plantaginifolia* (L.) Richards, for purposes of comparison.

Mr. Davis also exhibited a large piece of vari-colored jasperoid agate, found as a constituent of the Drift, near Rossville.

Dr. Hollick exhibited a large mass of silicified coral, weighing about 4 lbs., from the Yellow Gravel formation near Matawan, N. J., and compared it with a similar smaller piece from the Prince's Bay bluff, shown at the previous meeting.

PROCEEDINGS OF THE NATURAL SCIENCE ASSOCIATION OF STATEN ISLAND.

VOL. IX, No. 10.

DECEMBER 17th, 1904.

The regular meeting of the Association was held at the residence of Mr. Alanson Skinner, with the president in the chair.

The executive committee made a further report of progress along the lines suggested in its last report, relating to the possibility of obtaining new quarters through co-operation with the Municipal government.

On motion the report was approved and the committee was authorized to prepare an enabling act for submission to the Mayor, and if approved, to have it introduced in the State Legislature.

The following were elected to active membership:

Willard A. Boyd, New Brighton;
Rupert H. Hopkins, Port Richmond.

Dr. Arthur Hollick exhibited a large mass of fine fibrous roots and read the following note:

A REMARKABLE SEWER OBSTRUCTION.

This remarkable mass of closely interwoven, fine rootlets, was transmitted by our fellow member, Commissioner of Public Works, Louis L. Tribus. It represents a portion of a growth which was removed from a sewer pipe, as explained in this letter accompanying it:

"Louis L. Tribus, Esq.,
Commissioner of Public Works,
New Brighton, N. Y.

Sir:

On Sunday, September 25th, 1904, a

stoppage in the eight inch sewer on Wood Avenue, near Amboy Road, Totenville, was reported to me. Men were immediately sent to relieve same, which they accomplished after working late into the night

The cause of this stoppage I found to be elm tree root fibre, which had entered into sections of the vitrified pipe, thereby closing it entirely.

Believing that a specimen of this remarkable growth would be of interest to the Natural Science Association I had a portion of it thoroughly cleaned and beg to turn the same over to you for presentation.

Very respectfully,

E. H. Seehusen,

Supt. of Sewers."

A similar mass of fine willow roots was removed from the sewer in Wall Street, New Brighton, some years ago.

Mr. Wm. T. Davis exhibited specimens of the fruit and seed of the Black Haw or Nannyberry and read the following note:

VARIATION IN THE FRUIT OF THE BLACK HAW.

An examination of the fruit of our common Black Haw, or Nannyberry, (*Viburnum prunifolium* L.), shows that there is considerable variation in its shape. The flat stone in some instances is 10 mm. long by 7 mm wide; in

A

other specimens the stone is almost circular, being about 7 mm. in diameter. Specimens gathered in the Clove Valley and here exhibited, show these different forms. In *Viburnum Lentago* L. this tendency of the stone to vary in form from circular to oval, has been recorded and it would naturally be expected to be the same in the closely allied *V. prunifolium*.

MINOR NOTES.

Mr. James Chapin exhibited a mounted specimen of an English Starling, from New Brighton, with a malformation of the bill, due to crossing and elongation of the mandibles.

Mr. Ira. K. Morris presented a copy of an old poster, printed in 1846, entitled "An Address to the Independent Electors of Richmond County," in relation to the election of delegates to the State Constitutional Convention.

The secretary read the following notes on

RECENT LITERATURE RELATING TO STATEN ISLAND.

I. In the *New York Herald* of Sunday, November 20th, may be found an illustrated article entitled "Romance of the Golden Rectory of Staten Island." It refers to St. Andrew's church at Richmond and the illustrations include pictures of the church and vicinity; the

rectory, and a portrait of the late Rev. Thomas S. Yocum.

II. Mr. Cornelius G. Kolff has recently issued a neat little eight page pamphlet, with numerous well selected illustrations, under the title "Emerson Hill, Concord, Staten Island." It is designed to advertise the advantages and attractions of the property formerly owned and occupied by William Emerson, when he was County Judge, more than half a century ago. The development of real estate, as a rule is destructive of old associations and traditions, so it is pleasing to see that this property, although apparently fated soon to be divided into separate parcels, has fallen into the hands of those who appreciate its history and who design to perpetuate, as far as possible, the original features and names which were associated with it. In a short historical sketch, which constitutes the opening chapter, the visits of Ralph Waldo Emerson and Henry D. Thoreau are mentioned and their influence, which resulted in giving the name of Concord to the nearby settlement.

At the close of the meeting Mr. Skinner exhibited his collection of Indian implements which embraces a great many interesting objects from the Island.

PROCEEDINGS

OF

THE NATURAL SCIENCE ASSOCIATION

OF STATEN ISLAND.

VOL. IX, No. 11.

JANUARY 21st, 1905.

The regular meeting of the Association was held at the residence of Mr. Montague Lessler, Tompkinsville, with the president in the chair.

The executive committee reported further progress in the matter of co-operation with the City and advised that a law committee be appointed to consider and report upon any changes that might be necessary or advisable in the Certificate of Incorporation of the Association or in the Constitution and By-Laws.

On motion the chairman was authorized to appoint such a committee, to consist of himself and three other members. The chairman subsequently appointed Mr. Wm. A. Shortt, Mr. Montague Lessler and Mr. E. C. Delavan.

On motion the chairman was also authorized to appoint a committee to consider and report upon suggestions for a change in the name of the Association. The chairman appointed Mr. Wm. H. Mitchell, Mr. Wm. T. Davis and Dr. Arthur Hollick.

On motion the secretary was instructed to issue notices for a special meeting of the members of the Association, to elect a board of five trustees and to act upon any other matters that might arise in connection with the reports of the above mentioned committees.

Dr. Arthur Hollick exhibited specimens of amber from the Androvette clay pit at Kreischerville, together with photographs of the locality and of the section exposed in the pit, and read the following:

ADDITIONAL NOTES ON THE OCCURRENCE OF AMBER AT KREISCHERVILLE.

Since the publication of my preliminary paper on the discovery of amber at Kreischerville, in our Proceedings for November 12th, 1904, it was found that considerable interest had been aroused in the subject, which led to the preparation of a paper entitled "The Occurrence and Origin of Amber in the Eastern United States." This paper was read at the Philadelphia meeting of the Botanical Society of America, on December 30th, and will be published in a forthcoming number of the *American Naturalist*.

An exhaustive examination of the literature concerning amber showed very few records of the occurrence of the material in this region. Cape Sable, Md., Gloucester, Co. N. J., and Gay Head, Martha's Vineyard, were apparently the only localities mentioned where it had been found in place, although there is one rather indefinite reference to a large piece which was

said to have been "found on the shore of Raritan Bay, and now deposited in the Museum at Berlin, Germany," (*Trans. N. Y. Acad. Sci.*, ii (1883) 86)

Of special interest is the problem of the origin of amber. At the Cape Sable locality it was found in connection with a log of lignite, identified as the wood of an extinct species of *Sequoia*, the genus to which the giant trees of California belong, and it is interesting to note that at Kreischerville it occurs associated with leaves and twigs of *Sequoia heterophylla* Vel. and *S. Reichembachi* (Gein.) Heer. We are not in a position to say whether trees of this genus were the source of supply for our material, but it is fair to assume that they contributed to it. Other coniferous remains found in the same bed were identified as *Juniperus hypnoides* Heer, *Widdringtonites Reichii* (Etta.) Heer, cone scales of *Dammara*, the genus to which the "Kauri" gum tree of Australia belongs, and leaves of a species of *Pinus*.

Another exceedingly interesting phenomenon is the occurrence of charred wood, evidently the result of a forest fire at or prior to the time when the deposits containing the amber were laid down. This charred wood is entirely different from the lignite associated with it and was evidently produced by the direct effect of fire and not by any chemical action such as that which changed part of the wood into lignite. As man was not in existence at that period in the Earth's history the origin of the fire must have been due to some natural agency and as there is no indication of any volcanic disturbances we may assume, "in the absence of any more likely theory, that it was due to lightning.

Mr. Wm. T. Davis exhibited a number of hair and bone pellets, ejected by an owl, together with a specimen of the beetle *Trox erinaceus* Le C., found feed-

ing on them. Other species of the genus *Trox* were also exhibited and Mr. Davis read the following paper on
OWL PELLETS AS FOOD FOR BEETLES.

On the 16th of April, 1904, I visited the grove of cedars on the southerly side of the Fresh Kill road near Gifford's Lane. Under one of the trees I found twenty-three pellets of hair and bones of mice, thrown up by an owl that had frequented the tree for a considerable period. In some of the pellets the upper and lower jaws of the mice, with their teeth complete, were well preserved. The owl was not at home at the time of any visit, and the species was not ascertained.

Owls capture their prey with their talons; the smaller animals are swallowed whole and the bones and hair, in matted pellets, are later ejected at the mouth.

Looking over the pellets that had been thrown away by the owl in the cedar it occurred to me to make search for a *Trox*, which beetle would find in the dry hair and bones just the food to its liking. As a result of the search the little *Trox erinaceus* LeC., here exhibited, was discovered. It has been identified for me by Mr. Schaeffer of the Brooklyn Institute.

At the meeting of the New York Entomological Society, held May 19th, 1903, Rev. J. L. Zabriskie exhibited the snipped off butt ends of horse hairs that he had taken from the stomach of *Trox unistriatus*, collected some years before, about a dead horse. He called attention to the fact that all of the hairs, which he exhibited under the microscope, were nipped off in the same oblique manner.

The different species of *Trox*, of which we have so far found eight on the Island, are amongst the last insects to leave a dead animal. When the other scavenger beetles have departed from a dead mouse or bird for instance, these beetles attend and find a living. This exhibit thus well illustrates one of those economies of Nature; what was useless to the owl and to nearly every other animal, was highly desirable to the little *Trox erinaceus*.

PROCEEDINGS

OF

THE NATURAL SCIENCE ASSOCIATION

OF STATEN ISLAND.

VOL. IX, No. 12.

FEBRUARY 18th, 1905.

The regular meeting of the Association was held at the residence of Mr. Howard R. Bayne, with the president in the chair.

The president declared the special order of business to be the election of five trustees, in accordance with the following notice:

To the Members of the Natural Science Association of Staten Island:

Notice is hereby given that an election of trustees for the Natural Science Association of Staten Island not having been held at the last annual meeting, and the trustees not having within one month thereafter called a special election, a meeting of the members of the said Natural Science Association of Staten Island for the purpose of electing trustees thereof, will be held at No. 39 St. Mark's Place, New Brighton, in the County of Richmond, State of New York, on the 18th day of February, 1905, at eight o'clock P. M.

Dated January 23d, 1905.

ARTHUR HOLLICK,

Secretary.

The following nominations were made for trustees and there being no others the secretary was instructed to cast one affirmative ballot for the nominees. The secretary cast the ballot as

instructed and they were declared elected, viz:

Howard R. Bayne, Arthur Hollick, J. Blake Hillyer, Charles A. Ingalls and William T. Davis.

The Executive Committee made a further report of progress, consisting of correspondence between the committee and Borough President Cromwell, in regard to the possibility of obtaining accommodation for the Association in the new Borough hall, and the Committee on Incorporation reported that a new and broader charter for the Association was advisable, similar to one of those obtained by the Brooklyn Institute, American Museum of Natural History, New York Botanical Garden and other semi-public institutions, in order that the Association might enter into and maintain satisfactory relations with the municipal authorities.

The reports were accepted, discussed and approved and the Committee on Incorporation was requested to prepare a draft of a proposed new charter, as outlined in the report of the Committee, and to submit the same for discussion at a special meeting of the Association to be called for that purpose.

The Committee on Change of Name reported in favor of either 'The Scientific and Historical Association of

Staten Island" or "The Staten Island Association of Arts and Sciences."

The report was accepted and discussed and the latter name was approved and adopted as the name to be incorporated in the proposed new charter.

Mr. Wm. T. Davis exhibited mounted specimens of scrub oak and black-jack oak and their supposed hybrid, (*Quercus Brittoni* Davis) and read the following paper:

A NEW STATION FOR THE HYBRID OAK,
QUERCUS BRITTONI DAVIS.

In these Proceedings for September, 1892, an oak supposed to be a hybrid between the scrub oak (*Quercus nana* (Marsh.) Sarg.) and the black-jack oak (*Quercus Marylandica* Muench.) was described under the name of *Quercus Brittoni*. The trees from which the specimens were gathered grew at Watchogue, but were destroyed by fire a few years after their discovery.

During the past summer I was fortunate in finding an example of what appears to be this same hybrid growing near Lower Jamesburg, Middlesex Co., N. J., near the side of the road leading to Matchaponix. The tree is about fifteen feet high, has a single trunk with smooth bark and lighter colored foliage than the black-jack oak. In viewing the tree its mixed character is quite obvious, and upon a nearer approach the leaves are found to be rusty pubescent beneath, the pubescence being more generally spread over the surface than in *Marylandica*, though not so close as the white down in *nana*. Both the scrub oak and the black-jack oak grow at the Jamesburg locality, and near the tree described.

Mr. Jas. Chapin exhibited a mounted specimen of snow bunting (*Plectrophenax nivalis* Linn.) shot near Four Corners, and read the following memorandum:

SNOW BUNTINGS ON STATEN ISLAND.

The snow bunting, while common in winter farther north than Staten Island,

rarely comes here, except in very cold weather. They were seen by Dr. Hollick on Fort Hill in the winter of 1872-3 and by Mr. Wm. T. Davis on February 26th, 1892, at Todt Hill, and on Carey Avenue, West New Brighton, on February 22d, 1902.

On December 31st, 1904, I saw a flock of about twenty, near the beach at New Dorp. They flew over the salt marsh and lit on the sand. When they were running around in the weeds they allowed me to approach quite near, but when the nearest bird became frightened he flew up whistling and the others rose in a body. On January 14th there was a similar flock in the same place. On February 11th I saw a flock of about thirty flying over the salt marsh at New Dorp.

On February 13th I went to Castleton Corners. In a field behind Eckstein's brewery there was a flock of about seventy-five. They were eating the seeds of a weed and the waste grain from the brewery. These birds were shyer than those at New Dorp. When frightened they would all rise together, fly around overhead twittering, and then alight in another part of the field. I saw one sitting on the side of a stack of corn-stalks. I was told by a man working in the field that they came there once last winter. Doubtless their unusually large number this winter is caused by the cold weather and heavy snow-fall.

SPECIMENS EXHIBITED.

Mr. Davis exhibited under the microscope specimens of biting lice (*Nirmus thoracicus* Packard) found on the snow bunting exhibited by Mr. Chapin.

After the adjournment of the meeting the newly elected trustees met and organized by electing Howard R. Bayne, president; Arthur Hollick, secretary; J. Blake Hillyer, treasurer; and Charles A. Ingalls, curator.

PROCEEDINGS

OF

THE NATURAL SCIENCE ASSOCIATION

OF STATEN ISLAND.

VOL. IX, No. 13.

MARCH 18th, 1905.

The regular meeting of the Association was held at the residence of Mr. Wm. A. Shortt, with the president in the chair.

The minutes of the special meeting of March 16th, of which the following is an abstract, were read and approved, viz:

The president called the meeting to order and declared the special business to be to act upon the report of the Committee on Incorporation.

Mr. Montague Lessler gave a verbal report of the work of the committee and submitted a draft of the proposed act of incorporation of The Staten Island Association of Arts and Sciences, printed copies of which had been mailed to each member with the notice of the meeting.

Voted: that the report of the Committee be accepted and that the proposed act of incorporation submitted by the committee be approved as a whole and adopted, subject to such changes or substitutions in the names of the incorporators as might be found necessary.

Certain changes having been made in accordance with the above it was

Voted: that the committee be requested to have the act, as amended, introduced in the State Legislature, at the earliest possible date and to take such action as it might deem advisable to insure or assist its passage.

After the reading of the above minutes the committee reported that arrangements had been made to have the

proposed act of incorporation introduced in the State Senate and Assembly on March 20th.

The following were elected to active membership:

John Rader, New Brighton
Guillermo F. Ulink, Tompkinsville.
Chas. E. Trout, West New Brighton.
Thos. D. Rambaut, West New Brighton.

Mr. Alanson Skinner exhibited specimens and read the following paper on

FOOD MATERIALS USED BY THE STATEN ISLAND INDIANS.

When the Raritan-Delaware Indians held Staten Island and the surrounding shores, game, fish and shell fish of all kinds were more or less abundant, and many forms of our fauna, now extinct, were then in existence here.

Traces of many of these creatures, together with some of the less perishable vegetable products of the aboriginal fields, are still to be found, more or less well preserved, in the old fire-pits and graves, where they were hidden or cast aside so long ago. The following is an incomplete list of remains of the animal and vegetable food materials that have thus far been noted during our investigations. Thanks are due to Mr. Wm. T. Davis for assistance in identifications.

Mammals.

Virginia deer (<i>Odocoileus Americanus</i>)	Very abundant.
Raccoon (<i>Procyon lotor</i>)	Not common.
Wildcat (<i>Lynx rufus</i>)	Common locally.
Muskrat (<i>Fiber zibethicus</i>)	Fairly common.
Beaver (<i>Castor Canadensis</i>)	Frequent.
Rabbit (<i>Lepus Floridanus mallurus</i>)	Common.
Domestic dog (<i>Canis vulgaris</i>)	Common.
Timber wolf (<i>Canis occidentalis</i>)	Common.
Red fox (<i>Vulpes fulvus</i>)	Common locally.

Without doubt the black bear (*Ursus Americanus*) was a frequent article of aboriginal diet hereabouts, but so far no remains have come to our notice. This may perhaps be accounted for by the fact that many Indians of the Algonkin stock (to which our "Amerinds" belonged) held superstitious views about the bear, and in some localities they preserved or destroyed the bones of those they took in order that they might not give warning to the surviving members of their species.

Reptiles, Fishes and Crustaceans.

Box tortoise (<i>Terrapene Carolina</i>)	Common
Diamond-back Terrapin (<i>Malaclemmys centrata</i>)	Common.
Snapping tortoise (<i>Chelydra serpentina</i>)	Common.
Sting ray (<i>Dasyatis centrurus</i>)	Rare.
Sturgeon (<i>Acipenser sturio</i>)	Common locally.
Common lobster (<i>Homarus Americanus</i>)	Rare.
Blue crab (<i>Callinectes sapidus</i>)	Rare.

Bones of other fishes and reptiles in abundance, unidentified.

Shell-fish.

Oyster (<i>Ostrea Virginica</i>)	Very abundant everywhere.
Pear conch (<i>Fulgur carica</i> and <i>F. canaliculata</i>)	Very abundant everywhere.
Hard clam (<i>Venus mercenaria</i>)	Common locally.
Soft clam (<i>Mya arenaria</i>)	Common locally.
Scallop (<i>Pecten irradians</i>)	Common locally.
Mussel (<i>Mytilus edulis</i>)	Common locally.
Natiea (<i>Polynices heros</i> & <i>P. duplicata</i>)	Common locally.

Sea snails and "Fairy's Boats" are not common. They were probably present by accident only, having been brought in with clams and oysters, and were not an article of diet. In the spring of 1901, while excavating in the shell-pits at Old Place, in company with Mr. Wm. T. Davis, we had the good fortune to collect a great number of the shells of land snails (*Helix alternata* and *Helix thyroides*), but at the time we doubted their use as food. More recent discoveries have, however, proved the case. While exploring an ancient village site of the Shinnecock Indians at Shinnecock Hills, Long Island, in the summer of 1902, for the American Museum of Natural History, we discovered a large deposit of the shells of both species of snails under such conditions as to render further doubt impossible.

Birds.

Wild turkey (<i>Meleagris gallopavo</i>)	Abundant.
Vegetable substances being far more perishable than animal remains, correspondingly little of this nature is left. The following however have been collected.	
Indian corn (<i>Zea mays</i>)	Common locally.
Hickory nuts (<i>Hicoria</i> sp.)	Rare locally.

The Indian corn we have found differs in many ways from the modern variety. The cobs were very much shorter and more pointed and contained fewer and larger kernels. Strange to say it is not common, and only local. When any is found, however, it is usually in a good state of preservation.

Mr. Wm. T. Davis exhibited specimens of the small shrew mouse (*Blarina parva* Say) and read the following paper:

AN ADDITION TO THE LIST OF NEW YORK
STATE MAMMALS.

The N. Y. State Museum published in 1904 a "Key to the Land Mammals of Northeastern North America," by Gerrit S. Miller Jr. In that paper occurs the following note on the small shrew (*Blarina parva* Say): "The small *Blarina* is common in meadows and old fields throughout the upper austral and lower austral zones in the eastern United States. Its range therefore extends north about to the southern border of New York." The species was, however, not included in Mr. Miller's "Preliminary List of New York Mammals," published in 1899, for at that time he had no knowledge of its having been taken within the limits of the State.

In De Kay's work on the Mammals of New York, published in 1842, he says that he has not had an opportunity of examining the species but thinks it ought to occur within the State. In 1842 the information concerning some of our mammals and their distribution was much less perfect than it is to-day, and De Kay for example mentions several shrews under different names that are now considered but one species.

In this instance, however, De Kay's supposition that the small *Blarina* would be found in our state was well founded, for we are able to exhibit two specimens collected on Staten Island.

The first of these was found by the writer on the sandy part of Long Neck (Linoleumville), where, with Mr. Alanson Skinner we had gone to look for Indian implements, on the 13th of March, 1904. It was dead, and had probably been captured by an owl, or some other creature and then abandoned. Several mice and shrews have been found dead on our Island that were torn and mutilated by their captors and then left on the top of some boulder, or on the ground.

For the facts concerning the second specimen I am indebted to Dr. Philip Dowell, who informs me that the shrew was found by one of his pupils, Mr. Louis G. Woehrle, in the cellar of his home, 329 Lexington Ave., Linoleumville, February 25th, 1905. Mr. Woehrle says the shrew ran out of the wood pile. The fact that both these specimens came from Linoleumville is interesting.

In order to make sure that the identification of the species was correct, the specimen collected in March, 1904, was submitted to and identified by Dr. J. A. Allen of the American Museum of Natural History.

In the "Preliminary List of the Mammalia of Staten Island," printed in our Proceedings for August, 1885, the only shrew mentioned is *Blarina brevicauda* Say.

Dr. Philip Dowell exhibited specimens and read the following memorandum on

ADDITIONS TO THE FLORA OF STATEN
ISLAND.

Micrampelis lobata (Michx.) Greene. During the winter of 1902-3 I found the network remains of the fruit of this plant, on the west side of Palmer's Run, near Port Richmond, and the following summer I collected herbarium specimens. Mr. Charles W. Leng had noticed the plant in the same locality, on the east side of the brook, in the

fall of 1902 Last summer the plant was more abundant than before, thus appearing to be spreading. It was found also along Charles Ave. in Port Richmond, where the seeds may have been introduced with some rubbish.

Aster Lourieanus Porter. Abundant on Richmond Hill, Ocean Terrace, and in the woods along Bradley Road. This was probably included with *A. cordifolius* L. in previous lists.

Aster Lowricanus Bicknellii Porter. Ocean Terrace, occasional, with the last.

Aster Novi-Belgii Atlanticus Burgess. This was found near Arlington Station in the woods along South Ave., only a short distance from typical *A. Novi-Belgii* L., which grew along the borders of the same piece of woodland.

Plantago halophila Bicknell. Mr. Wm. T. Davis and I found this species close to the shore near Huguenot. I collected specimens also in the marsh along Old Quarry Road. It is probably the most common plantain of our marshes.

Commelina Virginica L. Found growing along a small brook near Nicholas Avenue and Charles Avenue, Port Richmond.

Dryopteris spinulosa (Retz.) Kuntze. This occurs in swampy ground, especially near Bull's Head, New Springville, and south of Arlington Station.

Dryopteris spinulosa dilatata (Hoffm.) Underw. The specimen exhibited comes from the swamp along Willow Brook, south of Richmond Turnpike. In the vicinity of Bull's Head, in woods along Bradley Road, and along South Avenue, I have also found specimens which I

consider as belonging to this variety.

Dryopteris Pittsfordensis Slosson. Before reading Miss Slosson's account of this fern, I had labeled my specimens *D. marginalis* x *spinulosa*, and Miss Slosson considers it as a hybrid between *D. marginalis* and some form of *D. spinulosa*. On November 27th, 1904, Mr. Davis and I found, on a kind of a stone wall or embankment, near a brook in the vicinity of New Springville, a single plant of a fern which was at once recognized as something new. Some time later, when I received the Fern Bulletin for October, I read Mr. G. A. Woolson's account of a new fern from Pittsford Mills, Vt., similar to specimens collected two miles distant and described by Margaret Slosson in Rhodora, April, 1904. I surmised that our new fern might prove to be the same as Miss Slosson's, and after reading the account in Rhodora and comparing with the type specimen in the herbarium of the New York Botanical Garden, I have concluded that ours may pass under the same name as that from Pittsford, Vt.

It is interesting to note that both grew among stones and among numerous plants of *D. marginalis* and some plants of some form of *D. spinulosa*.

SPECIMENS EXHIBITED.

Mr. Jas. Chapin exhibited a living English goldfinch, captured at New Brighton, with crossed mandibles, which malformation had developed subsequent to its capture. It was necessary to clip the overlapping ends at intervals of a week or ten days in order to assist the bird in feeding readily.

Aug. 22, 1914
15,860

PROCEEDINGS OF THE NATURAL SCIENCE ASSOCIATION OF STATEN ISLAND.

VOL. IX, No. 14.

APRIL 15th, 1905.

The regular meeting of the Association was held at the residence of Mr. Chas. A. Ingalls, West New Brighton.

In the absence of the president Mr. D. L. Bardwell was elected chairman *pro tem*.

The Committee on Incorporation reported that the new act of incorporation had been introduced in both branches of the State Legislature; that it had passed the Senate and was on the calendar for final disposition in the Assembly.

The following were elected to active membership:

Thos. A. Fulton, New Brighton, and Charles Humphrey, New Brighton.

The following paper was read by Dr. Arthur Hollick:

STATEN ISLAND'S FIRST RESIDENT NATURALIST.

On pages 188-214, of volume ii, Transactions of the New York State Agricultural Society, for the year 1842, may be found a report, under the heading: "Agriculture of Richmond County. By Samuel Akerly, M. D., Oakland Farm, Southfield." Dr. Akerly was one of the original members of the New York Lyceum of Natural History, in 1817, and was a brother-in-law of Dr. Samuel L. Mitchill, the first president of the Lyceum, and granduncle of our

fellow member Mr. William H. Mitchill. Dr. Akerly was corresponding secretary of the Lyceum in 1817 and second vice-president in 1819, but his name does not appear as that of an author of any paper in any of the volumes of the Annals.

So far as I have been able to ascertain Dr. Akerly was the first naturalist to reside on Staten Island, and in the report above quoted there is evidence that he was interested in agriculture not only on its economic side but from the point of view of the scientific observer. His report begins with a description of the boundaries and extent of our island and then continues with statistics relating to population, employment, and extent and value of farm products. From this part of his report it is interesting to note that the total population of the Island was at that time about 11,000, of which 841 were employed in agriculture, 786 in trades and manufactures, 441 in navigating bays and rivers, 340 in commerce, 212 in navigating the ocean, 90 in "the learned professions and as engineers" and 35 in quarrying stone. About one sixth of the male population or about one thirtieth of the total, made a living by agriculture and it is stated that "of bread corn [wheat and rye], barley,

oats, potatoes and hay, a much larger quantity is produced than the consumption of the county requires, and the surplus is sold in the City of New York."

Under the sub-heading "Navigation and Fisheries" is given a list of the salt water fishes taken for food, and the abundance of oysters and clams in the surrounding waters is said to "tend to withdraw the attention of the inhabitants from the cultivation of the land."

The subject of "Meteorology" is treated at considerable length and under it are included discussions of the tides, winds, snow and thunder storms, etc.

The trees utilized for timber are listed as "several species of oaks, and walnuts, chestnut, beech, birch, dog-wood, white-wood [probably tulip tree], gum, etc." In this connection the author notes that "Staten Island was once celebrated for furnishing superior white oak for ship timber, but there is very little standing of large size." Also "Fencing materials are scarce on the island, both for posts and rails. * * * White cedar rails are now extensively used, and procured from the swamps in New Jersey about Egg Harbor, at about \$6 to \$8 per 100."

Under "Noxious Weeds" are mentioned the daisy [*Chrysanthemum Leucanthemum* L.], Johnswort [*Hypericum perforatum* L.], wild garlic [*Allium vineale* L.], burdock [*Arctium Lappa* L.], common dock [*Rumex crispus* L.], narrow and broad-leaved plantain [*Plantago major* L. and *P. lanceolata* L.], wild parsnip [*Pastinaca sativa* L.] and wild carrot [*Daucus Carota* L.].

Of special interest however is his chapter on the "Geology of Richmond County." After describing the features of the soapstone hills, the trap ridge, and the character of the soils, the continues as follows:

"Few or no minerals of any value have been found in the County. Near Rossville * * * some persons were

possessed with the idea of a coal mine * * * but upon examination it proved to be lignite, or wood carbonized by the decomposition of pyrites."

It may be remembered that at our meeting of December 12th, 1903, there was shown a mass of native copper, said to have been found in the moraine on Grymes Hill, but that it was a drift boulder was considered questionable or at least not proven. In this connection therefor the following paragraph in Mr. Akerly's report is of considerable significance:

"During the last war with Great Britain, while the forts at the Narrows were in process of erection, detached pieces of pure virgin copper were found in excavating the hill below Fort Richmond on this island. They were deep among the materials of the upland diluvium [morainal material], and were not accidentally dropped there, but must have been brought from the north."

His report finally ends with a, to us, quaint and elemental paragraph, to the effect that "the roll of the ocean has an action upon the stones and gravel, not only in wearing away their angles, but in reducing many of them to elliptical shapes. Some of these are so handsomely formed and polished by attrition on the sea shore, that the subscriber forwards herewith a few picked up on his water front. If the Society have no place for the display of such specimens, they may be deposited in the State Geological Cabinet at Albany, that geologists may study the action of water and the roll of the ocean upon stones." A footnote, on page 188, tells us that "accompanying this report were received an accurate original map of Richmond County, and some geological specimens, which will be disposed of according to the directions of Dr. Akerly, and for which he will please accept the thanks of the Society."

In the same Transactions, for the year 1843 (vol. iii, pp. 454-461), under

the heading "Staten Island. Supplement to the Agriculture of Richmond County," the author gives a further list of the fishes "taken in the spring and autumn of 1843, on the shore of Oakland Farm, near the Great Kills," and another of the trees. Amongst the latter is listed the shad bush [*Amelanchier* sp.], "a white flowering shrub, that expands its blossoms before the forest trees are clothed with foliage, and indicates the approach of the fish from which it derives its common name." It is also of interest to note that in this list the butternut is included,—a tree which is now nearly extinct on the island.

A few brief paragraphs on "Geology" terminate this report, which consist of references to the granite outcrop near the old Tompkinsville landing and to Mr. Issachar Cozzens's "Geological History of Manhattan or New York Island," which was published in 1843. His final words are: "In the above-mentioned work, Mr. Cozzens states, that the green-sand formation of New Jersey, which contains the valuable marl there extensively employed as manure, underlays a portion of Staten Island and Long Island. It would be a great boon to the farmers of these islands, if, by digging wells or by any other means, they should strike into a bed of Jersey marl, which by analysis is known to contain a large proportion of potash, that gives it the fertilizing quality so conspicuous in Monmouth county in that State."

Dr. Akerly was a type of the old time "naturalist," who was interested in all branches of natural history,—a type of the scientific man which in this era of specialization is almost unknown. It is unfortunate that the records of his observations are so comparatively meagre, as there is no doubt that he could have noted many other facts in regard to our local fauna and flora then in

existence which are unrecorded and forgotten.

The following paper was read by Mr. Alanson Skinner:

AN ATTEMPT AT THE TRANSLATION OF SOME STATEN ISLAND INDIAN NAMES.

According to Clute's History of Staten Island, and the later works by Bayles and Morris, one of the indian names for Staten Island was given as "Aquehonga," and the Rev. Wm. Beauchamp is said to have translated it as meaning "High Sandy Banks." Schoolcraft gives "Aquehonga Manacknong" as "The Place of Bad Woods."

Some years ago, Dr. James Hammond Trumbull complied from the famous indian bible of the "Apostle Elliot," a dictionary of the Natick-Algonkin dialect, which is, or rather was, very closely related to the tongue used by our own aboriginal inhabitants. In fact all the Algonkin dialects are closely akin, and are easily understood by tribes of the same stock from widely different localities.

Dr. Hale, in his introduction to Trumbull's Dictionary, says; "In the spring of 1899 I placed before a Chippewa boy in the Hampton (Virginia) School, thirty words of the Massachusetts indian language. He recognized at once fifteen of them giving them their full meanings, and with a little study made out the remainder. In the course of two-and-a-half centuries the uses of words differ among Indians as among white men, but it would seem that they do not differ more."

As our early settlers did not bother themselves to any great extent with the pronunciation or spelling of indian words and names it would very likely happen that many of those handed down to us would not be in all cases correct, so it is fair to infer that the name "Aquehonga" has undergone some slight modification after this fashion.

In Trumbull's dictionary the word "Ahquedne" is given as meaning an island, and, as is well known, the local Algonkin place-termination is "ock," so that, by joining the two words together we have the word "Ahquedne-ock," the "Place of the Island." certainly not an inappropriate term for this locality, if our surmise is correct.

It is interesting to those who claim that the name of the locality known as "Watchogue" is of indian origin, and not as the inhabitants of modern days would have us believe, a misspelled English nick-name, that Mr. Wm. Wallace Tooker, in a recent number of the "*Journal of American Folk Lore*," in an article dealing with some of the indian names for mountains and hills in New England, states that the name "Wochogue," is a frequent one on Long Island for a slightly hilly region in an otherwise level country. In the Natick dictionary the kindred word "Wadchuemes," is given as, "a hill," and "Wadchuwemesash," as "little hills." Watchogue is, as we all know a "country of little hills" and sand-dunes, so we think that for the present at least the name should be regarded as of indian origin.

The secretary read the following reviews of

RECENT LITERATURE RELATING TO STATEN ISLAND.

I. *The Occurrence and Origin of Amber in the Eastern United States.* Arthur Hollick. *American Naturalist*, Vol. xxxix (Mch., 1905), pp. 137-145, pls. i-iii.

This paper includes an account of the discovery of amber at Kreischerville, first recorded in our Proceedings for November 12th, 1904, together with a description of the clay beds and of the specimens found there. Following this is an account of previous records of the occurrence of amber in the eastern United States and a discussion regarding the probable origin of the amber. In

the latter connection the author notes that specimens found at Cape Sable, Maryland, were proven to have been derived from an extinct species of *Sequoia*,—the genus to which the giant trees of California belong,—and that at Kreischerville, in close association with the amber, are twigs and leaves of *S. heterophylla* Vel. and *S. Reichenbachii* (Gein.) Heer, as mentioned in our Proceedings of January 21st, 1905.

The illustrations include an extended view of the section exposed in the Androvette pit, showing the Cretaceous clays and sands below and the more recent sands and gravels lying unconformably over them; a closer view of the particular part of the section in which the amber was found; and a plate of figures, showing the sizes and characteristic shapes of thirty-four selected specimens.

II. *A Recent Discovery of Amber on Staten Island.* Arthur Hollick. *Journal of the New York Botanical Garden*, Vol. vi (Mch., 1905), pp. 45-48, figs. 14, 15.

This is a briefer article than the one previously noticed, dealing with the same subject, and including, in part, the same illustrations. In fig. 14 the amber bed in the Androvette pit is shown, with the genial superintendent, Mr. John M. Dunigan, posing as a standard of comparison for the height of the section containing the bed. Fig. 15 includes six representations of amber specimens, which are somewhat better pictures than those of the same specimens on Plate iii of the *American Naturalist*, previously noted.

III. *Small Deposits of Amber found on Staten Island.* Brooklyn Daily Eagle, Sunday, April 2d, 1905.

This is quite a lengthy account of the occurrence and uses of amber, preceeded by a reference to the recent discovery of amber at Kreischerville, apparently based upon the notice which have appeared in our Proceedings or in the

publications above mentioned. By some means the information is made to appear as if obtained from the U. S. Geological Survey at Washington.

SPECIMENS EXHIBITED.

Mr. Wm. T. Davis exhibited the following objects: branch of a tree and a cocoon, showing the work of woodpeckers in their search for larvae. Where cocoons are suspended on slender branches the birds have considerable difficulty in opening them, on account of the swaying and consequent lack of resistance to the impact of blows; shoots of wild cherry, dogwood, apple and benzoin, from the vicinity of Moravian Cemetery, girdled by rabbits during the past winter, indicating that the animals were hard pressed for food; twigs of an apple tree, covered with the San José scale (*Aspidiotus perniciosus*

Comst.), and, for comparison, a lilac twig with some of the common scale insects attached; a piece of soapstone from an outcrop in Simonson's brook, near Richmond Hill, representing an exposure further to the westward than any previously recorded on the island.

Mr. L. W. Freeman presented two jasper arrow points, apparently rejects, found at Mariners' Harbor.

Mr. Chas P. Benedict exhibited a collection of silicified wood, and sand concretions, from Southern Pines, N. Carolina and a skull of a rattlesnake, with the poison fangs attached, from Palm Beach, Florida. Also section of a wooden water main, in use in New York City until about 1835, and recently unearthed. The wood is remarkably well preserved.

PROCEEDINGS

OF

THE NATURAL SCIENCE ASSOCIATION

OF STATEN ISLAND.

VOL. IX. No. 15.

MAY 20th, 1905.

The regular meeting of the Association was held at the residence of Mr. Lester W. Clark, New Brighton, with the president in the chair.

In the absence of the secretary Mr. Charles A. Ingalls was elected secretary *pro tem*.

Mr. Montague Lessler, for the Committee on Incorporation, reported that the act incorporating the Staten Island Association of Arts and Sciences had passed both branches of the State Legislature; had received the approval of the Mayor; was signed by the Governor yesterday (May 19th) and is now Chapter 526 of the Laws of 1905.

The president outlined the work of the committee from the date of its appointment, at the meeting of January 21st, and suggested that a vote of thanks be tendered to the committee, for record in the minutes of the Association.

Mr. Edward P. Doyle offered the following, which was unanimously adopted:

Resolved: that the thanks of this Association be and they are hereby tendered to the Committee on Incorporation, especially to Mr. Montague Lessler, for the care and wisdom displayed in the drafting of the Act of Incorporation of the Staten Island Association of Arts and Sciences, and for the time and attention subsequently given to it, which resulted in prompt and favorable

action by the Legislature and approval by the Mayor and Governor.

A formal vote of thanks was also tendered Assemblyman Arnold J. B. Wedemeyer and Senator Carl S. Burr for their prompt and efficient work in behalf of the act.

Mr. Lessler suggested that a Committee on Constitution and By-Laws should be appointed, in order that the new corporation might be in a position to discuss and adopt them and effect a permanent organization at the earliest possible date.

On motion the president appointed Mr. Lessler and Dr. Arthur Hollick as such committee.

Mr. Wm. A. Shortt urged an early compliance with the provisions of section 6 of the act of incorporation and offered the following, which was unanimously adopted:

Resolved: that a special meeting of the Natural Science Association of Staten Island be called for Saturday evening, June 3rd, 1905, at the Staten Island Academy, for the purpose of taking action under Section 6 of Chapter 526 of the Laws of 1905, incorporating the Staten Island Association of Arts and Sciences, and that the secretary include in the call for the meeting, the following resolution:

Resolved: that the Board of Trustees of this Association be and they are hereby authorized to assign and convey

to the Staten Island Association of Arts and Sciences all the property, real and personal, owned and held by this Association.

On motion the Committee on Incorporation was authorized and requested to prepare in advance all necessary papers and forms of resolutions necessary to carry out the intent and purpose of the special meeting.

The following were elected to active membership:

Rev. Arthur H. Allen, Tompkinsville and Mr. John Martin, Stapleton.

NOTES AND MEMORANDA.

The following note from Dr. Arthur Hollick was read:

At our last meeting Mr. Charles P. Benedict exhibited a section of an old wooden water main, in use in New York City until 1835. I was curious to know what kind of wood had been utilized for the purpose and transmitted a piece to Professor E. C. Jeffrey, of Harvard University, who kindly determined it for me. It proves to be white pine (*Pinus Strobus* L.),—a tree which is not now very plentiful in this vicinity, although formerly quite abundant.

Mr. Wm A Shortt described, by means of a series of carefully executed sketches, his observations on the successful co-operative efforts of several ants engaged in the task of dragging the body of a caterpillar over various obstacles.

SPECIMENS EXHIBITED.

Mr. James Chapin exhibited four mounted specimens of the American goldfinch [*Astragalinus tristis* (Linn.)], to illustrate the male moult. They were obtained respectively on November 6th, 1904, April 8th, 1905, April 22nd, 1905 and May 18th, 1905. The first was in winter plumage and the last in full breeding plumage.

Mr. Alanson Skinner exhibited a collection of arrow points, arranged on cotton batting, in a shallow glass-covered case, in order to illustrate this method of displaying them. The specimens were held in place on the cotton by the pressure of the glass cover and withstood considerable handling and shaking without becoming displaced.

PROCEEDINGS

OF

THE NATURAL SCIENCE ASSOCIATION

OF STATEN ISLAND.

VOL. IX. No. 16.

JUNE 3rd, 1905.

A special meeting of the Association was held at the Staten Island Academy, pursuant to the following notice, twenty-four members being present:

NATURAL SCIENCE ASSOCIATION OF STATEN ISLAND.

Please take notice that a special meeting of the Natural Science Association of Staten Island will be held at the Staten Island Academy, New Brighton, N. Y., on Saturday the 3rd day of June, 1905, at 8.30 o'clock in the evening, for the purpose of acting on the following resolution:

Resolved: That the Board of Trustees of this Association be and they are hereby authorized to assign and convey to the Staten Island Association of Arts and Sciences all the property, real and personal, owned and held by this Association.

ARTHUR HOLLICK, Secretary.

The president called the meeting to order and explained the object of the resolution included in the call for the meeting.

The resolution was then put and carried unanimously.

Mr. Edward C. Delavan moved the following resolutions:

Resolved: That all the property of the Natural Science Association of

Staten Island be assigned to the Staten Island Association of Arts and Sciences.

Resolved: That a suitable deed of assignment be prepared, expressing a nominal consideration, and that the same be executed by the President and Board of Trustees, in the name of the said Association and the said Board of Trustees, and properly acknowledged.

Resolved: That the said deed and all the property thereby assigned be delivered to the Staten Island Association of Arts and Sciences by the President of the Natural Science Association of Staten Island.

The resolutions were discussed and after discussion were unanimously adopted.

On motion the Association then adjourned *sine die*.

The Board of Trustees met immediately after the adjournment of the special meeting of the Association, with the president in the chair.

Voted: That the President sign his name and affix his personal seal to the deed of assignment from the Natural Science Association of Staten Island and its Board of Trustees to the Staten Island Association of Arts and Sciences of all the assignor's property, and duly acknowledge the same, pursuant to a resolution of the said grantor Association.

On motion the Board then adjourned to the call of the President.

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